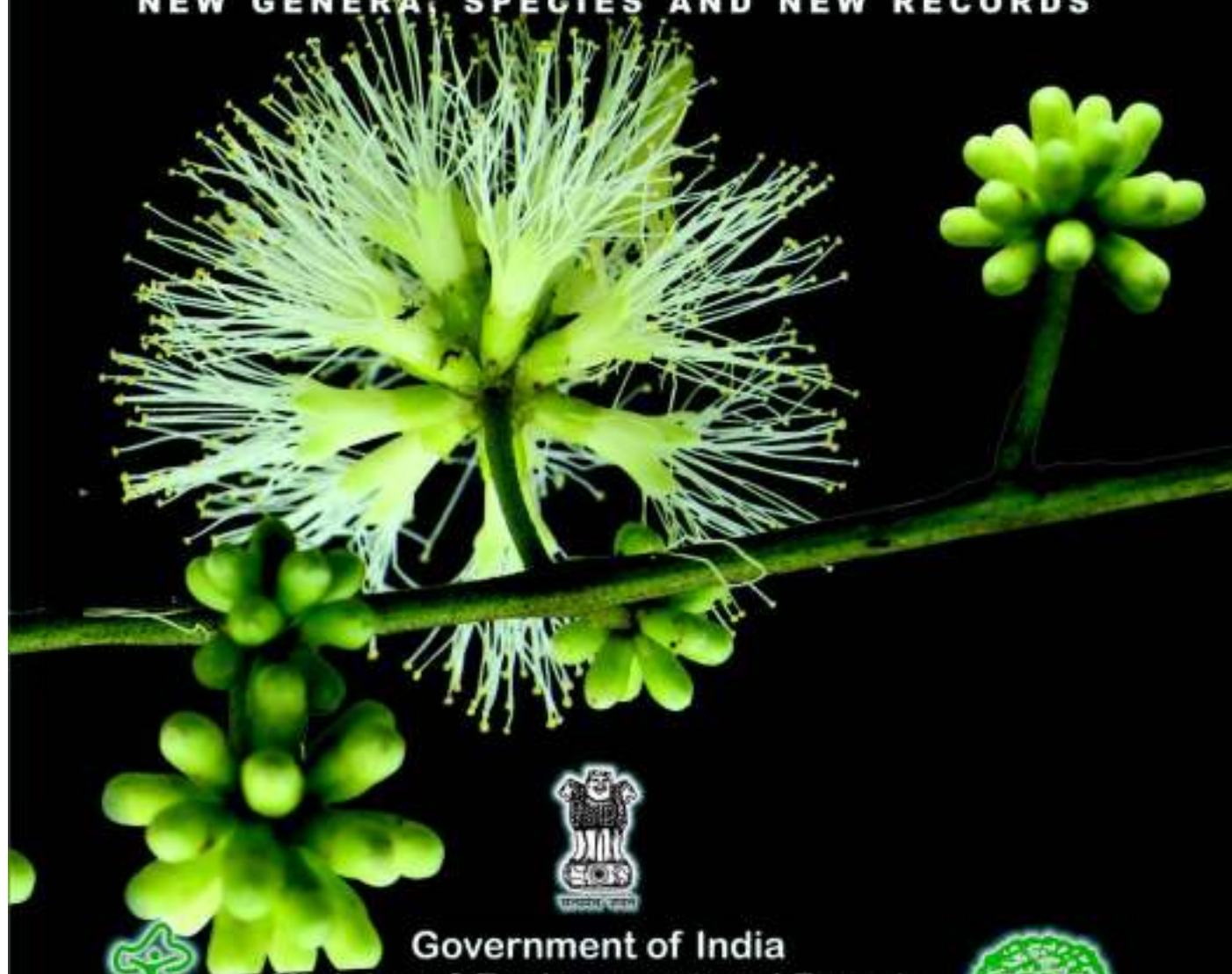




Plant Discoveries 2011

NEW GENERA, SPECIES AND NEW RECORDS



Government of India
Ministry of Environment and Forests
Botanical Survey of India
5th June, 2012



Plant Discoveries 2011
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Support

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Front cover

Archidendron nielsenianum S.S. Dash & Sanjappa (Photo : S.S. Dash)

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जयंती नटराजन
Jayanthi Natarajan



राज्य मंत्री (स्वतंत्र प्रभार)
पर्यावरण एवं वन मंत्रालय
भारत सरकार
नई दिल्ली-110003
MINISTER OF STATE (INDEPENDENT CHARGE)
ENVIRONMENT & FORESTS
GOVERNMENT OF INDIA
NEW DELHI - 110 003



Message

It gives me great pleasure to learn that the Botanical Survey of India is bringing out a volume on Plant Discoveries for the fifth consecutive year. This publication, aimed at creating awareness about the plant wealth of our country, highlights new discoveries and new distributional records of plants from India during the year that has gone by and the role played by the taxonomists in bringing these novelties to the fore. The publication will come as an important reference on new additions to the Indian flora.

It is heartening to note that the Scientists from BSI as well those from other research and academic institutes within and outside the country have been working with commitment to explore, identify, characterise and document the country's plant diversity. In this process, they have discovered over 280 new plants, fungi, and microbes from India during the year 2011.

I congratulate the entire team of Scientists of BSI and other organizations for their tireless effort to explore the unknown and update our knowledge on plant diversity of the country and commend the effort of BSI in publishing 'Plant Discoveries 2011' so as to create general awareness about the expanding species count. This is all the more significant as the country is preparing to host the Conference of Parties (CoP-11) on 'Convention on Biological Diversity' at Hyderabad.


(Jayanthi Natarajan)



तिष्यरक्षित चटर्जी
Dr. Tishya Chatterjee



सचिव
भारत सरकार
पर्यावरण एवं वन मंत्रालय
Secretary
Government of India
Ministry of Environment and Forests



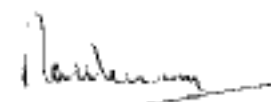
FOREWORD

The Botanical Survey of India (BSI) was established in 1890 with headquarters at Kolkata and regional centers spread across different bio-geographical regions of the country. BSI is consistently carrying out plant exploration, taxonomic research and documentation of the plant diversity of the country at district, state, regional and national levels with special emphasis on the fragile ecosystems and the protected areas to complement efforts of the nation towards conservation and sustainable utilization of its plant diversity. The taxonomic studies carried out by the scientists of the BSI as well as other research institutes and academia, both within and outside the country have resulted in the discovery of new plant species or new distributional records.

'Plant Discoveries' is a compilation of such new discoveries and new distributional records from the country during the preceding year and are released on the 'World Environment Day' every year since 2008 to create awareness about the rich plant diversity of our country. The present issue of this compilation includes 284 different genera, species, subspecies and varieties of plants ranging from microscopic organisms to large shrubs and trees discovered during 2011.

I appreciate the painstaking efforts made by the scientists of BSI and other institutions in unearthing these novelties from different geographical regions and eco-climatic zones of the country. I also congratulate BSI for the professionalism shown in bringing out 'Plant Discoveries 2011' to create awareness among different sectors of the society and wish them the very best in their future endeavors.

May 28, 2012


(T. Chatterjee)



जहाँ है हरियाली।
वहाँ है खुशहाली।

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PREFACE

Taxonomy is the key science for identification of biological resources and implementation of the Convention on Biological Diversity (CBD). India with only 2.4% of world's geographical area, accounts for about 11.4 % of the recorded plant species and is recognized as one of the mega-diverse countries of the world. Taxonomic research carried out by the taxonomists in different parts of country is yielding increasingly interesting findings in form of discovery of plant species both as new to science and to the present political boundary of the country. Botanical Survey of India has been compiling this information, otherwise scattered in vast array of journals published from different parts of world, on yearly basis since 2008. The "Plant Discoveries" released every year on the occasion of "World Environment Day" provides single set of anthology on the new species and new distributional records of plants discovered from the country during the previous calendar year.

The last four issues of Plant discoveries have been widely acclaimed as valued compilation on newly described plants and found the majority appreciating their usefulness. During the year 2011, 284 species and infraspecific taxa of plants, fungi and microbes have been added to the Indian flora. In this effort, we received overwhelming support from all taxonomists across the country and even outside. We are thankful to each one of them.

This document, though a compilation of data from various sources and published by different authors on new Indian plants, is a ready reference for not only botanists, researchers and teachers but also for policy makers and general public. Information and some of the photographs included here have been sourced from the papers published in *Asklepios*, *Bioinfolets*, *Bangladesh Journal of Plant Taxonomy*, *Composite Newsletter*, *Nordic Journal of Botany*, *Edinburgh Journal of Botany*, *Kew Bulletin*, *Phyto Keys*, *Orchid Review*, *Rheedea*, *Taiwania*, *Journal of American Sciences*, *Journal of Japanese Botany*, *Journal of Threatened Taxa*, *Journal of Botanical Research Institute Texas*, *International Journal of Systematic and Evolutionary Microbiology*, *Journal of Bryology*, *Pakistan Journal of Botany*, *Lichenologist*, *Mycotaxon*, *Nelumbo*, *Journal of Orchid Society of India*, *Journal of Economic and Taxonomic Botany*, *Indian Journal of Forestry*, *Willdenowia*, etc. We gratefully acknowledge their sharing of these published works with us. Any suggestions to further improve the content and presentation are welcome.

Paramjit Singh
Director
Botanical Survey of India

PREAMBLE

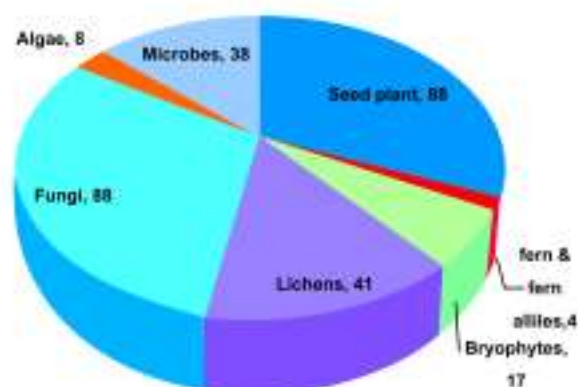
India, with its varied geography, topography, climatic regimes, altitude and ecological habitats exhibits a rich floristic diversity. The diversity of flora is further compounded by the confluence of three major biogeographic realms, namely Indo-Malayan (the richest in the world) the Indo-Arctic (Eurasia) and Afro-tropical. The Indian flora is concentrated in four floristic hotspots viz., Himalayas, Western Ghats (and Sri Lanka), NE India and Andaman Islands (Indo-Burma), and Nicobar Islands, (Sundaland), which are identified amongst the thirty four 'global bio-diversity hotspots'. These regions show high degree of endemism and higher incidence of rare and threatened plant species.

The Indian Flora accounts for about 11.4 per cent of the total recorded plant species of the world. About 28 per cent of the Indian plants are endemic to the country.

In the present state of our knowledge India has about 46,824 species of plants already identified and classified, but there are still many yet to be identified and described. The species presently recorded from India are given in group wise below

Group	No. of Species in India	Percentage of Indian Flora
Virus/Bacteria	966	2.02
Algae	7192	15.36
Fungi	14,698	31.38
Lichens	2333	4.95
Bryophytes	2,479	5.29
Pteridophytes	1,265	2.70
Gymnosperms	74	0.15
Angiosperms	17,817	38.15
TOTAL	46,824	100.00

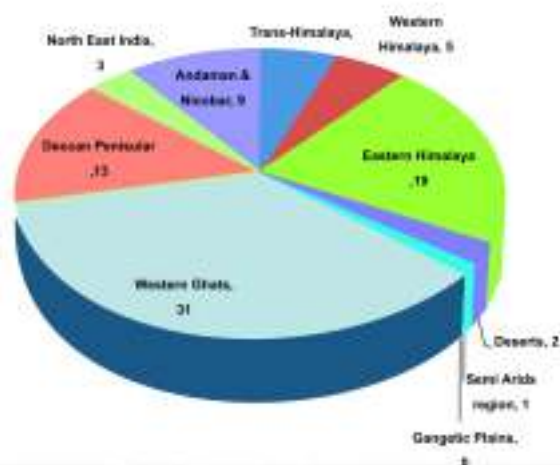
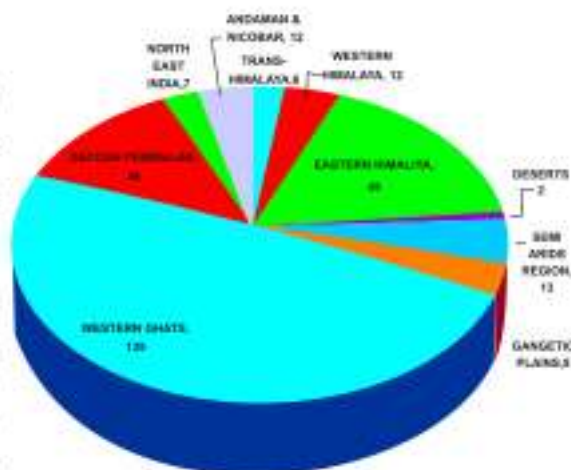
During the year 2011, discovery of 11 new genera, 162 new species, one notho-species and 25 new infra specific taxa were made while new distributional record of three genera, 72 species and 10 infraspecific taxa were reported as new to India. Scientists of BSI published 2 new genera, 31 new species, and 5 new subspecies/varieties of plants and 2 genera, 35 species, 4 subspecies 4 varieties and one forma as new records for India.

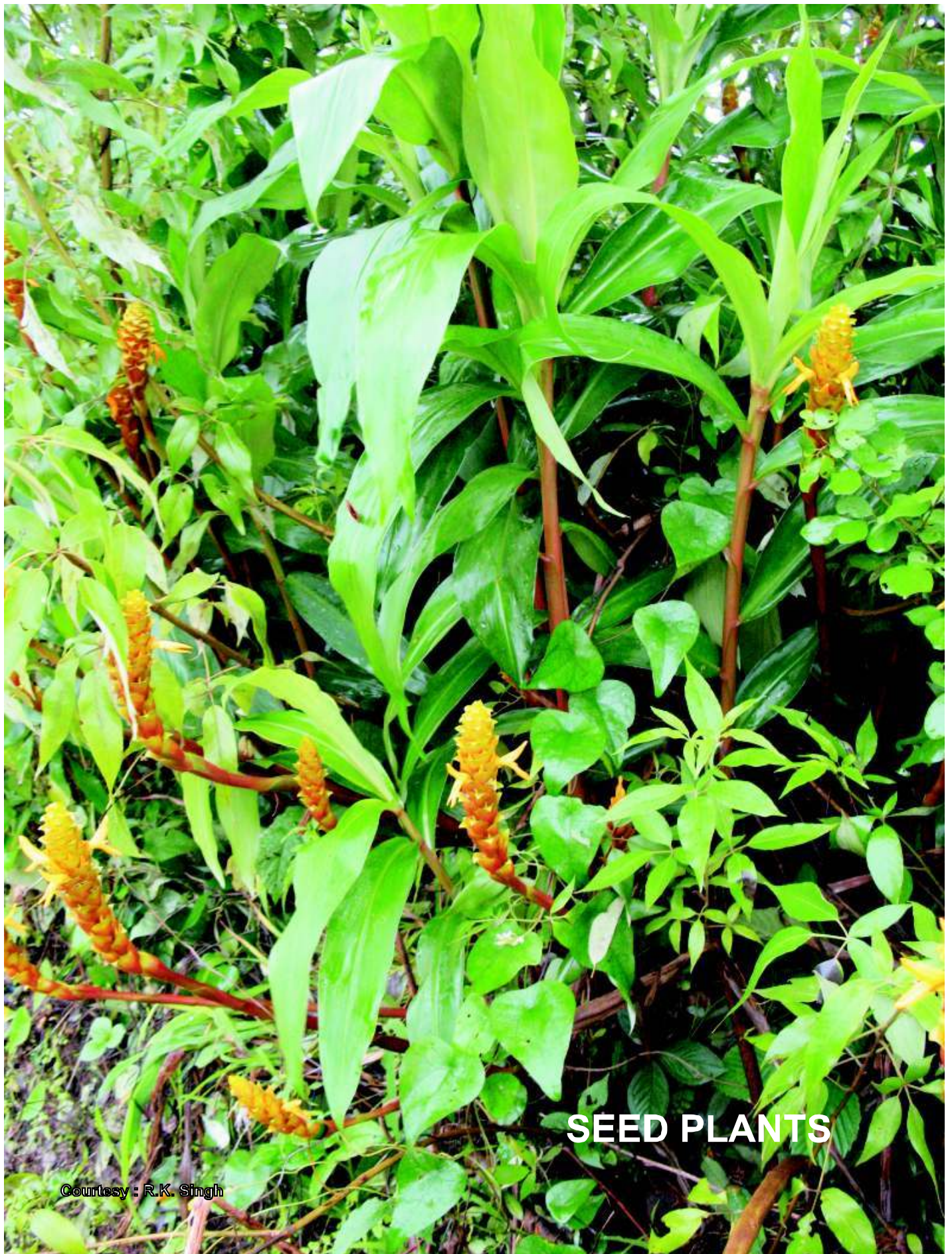


During 2011, Seed Plants and Fungi contributed 31 per cent of the total discoveries each, while the fern and fern allies contributed the least with one per cent. Lichens accounted for 15 per cent, Microbes 13 per cent, Bryophytes 6 per cent and Algae contributed 3 per cent of the total additions during 2011.

Western Ghats accounted for 49 per cent of the total discoveries made during 2011 followed by the Himalayas (23 per cent), Deccan peninsula (13 per cent) and semi-arid regions (6 per cent). It is rather interesting that North-Eastern India and the Andaman & Nicobar Islands, the two floristically rich regions of the country, accounted for four and two per cent respectively of the total number of plants discovered during the period. The Gangetic plains accounted for 3 per cent of the total discoveries, most of which are microbes.

Among the seed plants 35 per cent of the new discoveries have been made from the Western Ghats, followed by the Eastern Himalaya (22 per cent), Deccan peninsula (15 per cent), Andaman & Nicobar Islands (12 per cent), Trans-Himalayas and Western Himalaya (6 per cent each). Arid and Semi-Arid regions together account for three per cent of the total discoveries of seed plants.





Courtesy : R.K. Singh

SEED PLANTS

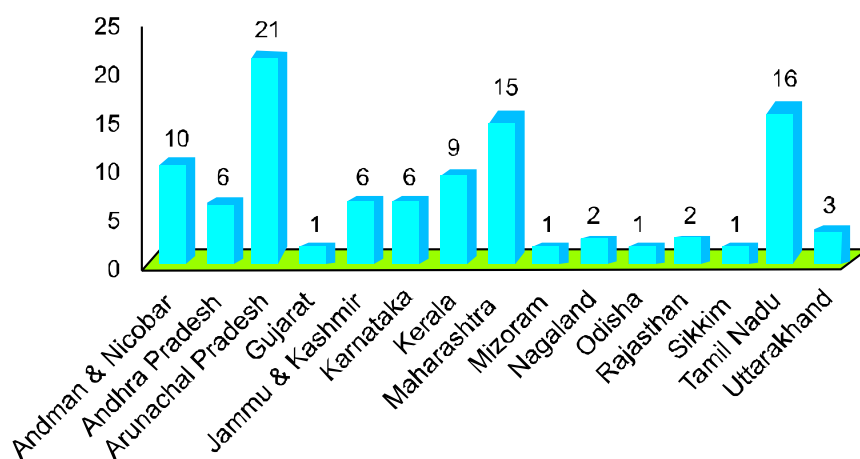
Seed plants (Spermatophytes) are the most evolved land plants on earth and are traditionally divided into flowering plants (or angiosperms) and gymnosperms. In the present state of our knowledge India has about 17,817 species of angiosperms and 74 species of gymnosperms. Many more are yet to be identified and described.

The collated information presented here includes 02 new genera from Himalayas (one each from Uttarakhand and Sikkim)

36 new species (08 from Maharashtra, 05 from Arunachal Pradesh, 04 each from Kerala and Tamil Nadu, 03 each from Karnataka and Uttarakhand, 02 each from Jammu & Kashmir and Andaman & Nicobar Islands.

01 each from Andhra Pradesh, Gujarat, Nagaland, Odisha, and Rajasthan).

18 infra specific taxa (01 new subspecies, 16 new varieties, 01 new form) and 32 new distributional records from India.



PERCENTAGE OF SEED PLANTS DISCOVERED FROM INDIAN STATES



Devendraea Pusalkar, Taiwania 56(3): 210. 2011. (CAPRIFOLIACEAE)

This new genus has been described on the basis of *Lonicera myrtillus* Hook.f. & Thomson, known from Himalaya [Bhutan, China, India (Jammu & Kashmir to Sikkim), Myanmar, Nepal, Pakistan]. It is segregated from genus *Lonicera* L. due to its actinomorphic flowers with equal/subequal straight corolla lobes, without lateral saccate gibbosity at corolla base, stamens usually inserted at the middle of corolla tube, anthers as long as or longer than filament, presence of 5 nectaries and with flat/carinate leaf venation. The genus has 8 lignaeous species distributed in the Sino-Himalayan region with one species extended to the central Asian mountains. The genus is named in honour of Dr. Devendra. K. Singh, Scientist F, Botanical Survey of India, Kolkata, an eminent taxonomist and the teacher of the author.

Pseudoyoungia D. Maity & Maiti, Comp. Newsl. 48. 2010. (ASTERACEAE)



This new genus is segregated from the genus *Tibetoseris* Sennikov based on the morphological characters of leaves, receptacle, relative length of corolla tube and ligule, stigmatic surface as well as the anatomical characters of cypselas. The new genus comprises of nine species mainly distributed in the Himalaya (Sikkim, Uttarakhand), Bhutan, Nepal and China. The genus is named *Pseudoyoungia* for its apparent similarities with *Youngia* Cass.



***Archidendron arunachalense* S.S.Dash & Sanjappa, Nelumbo 53: 8, 2011. (LEGUMINOSAE: MIMOSOIDEAE)**

This new species was discovered and described based on collections made on way from Nyapin to Lumba village, Kurung Kumey district, Arunachal Pradesh at an altitude of 1230m. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotypes and paratypes are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). The species is named after the State of its occurrence.

***Archidendron nielsenianum* S.S.Dash & Sanjappa, Nelumbo 53: 8, 2011. (LEGUMINOSAE: MIMOSOIDEAE)**



This new species was discovered and described based on collections made from a place near Sangram (6th Km point on way from Sangram to Koloniang), Kurung Kumey district, Arunachal Pradesh at an altitude of about 1200m. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotypes and paratypes are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). The species is named in honor of Dr. I.C. Nielsen, who made significant contribution to the taxonomy of genus *Archidendron* F.Muell.

Axyris mira Sukhor., Willdenowia 41(1): 76, 2011. (CHENOPODIACEAE)

This new species was discovered and described based on collections made from Milam glacier, Kumaon, Uttarakhand at an elevation of about 3750 m. The holotype is deposited in herbarium of the V. L. Komarov Botanical Institute, Saint Petersburg (LE), Russia. The species is distributed in India (Uttarakhand, Jammu & Kashmir), Nepal, Pakistan and China. The specific epithet "Mira" meaning beautiful is assigned because of its good looking fruits.



Berberis rawatii U.L.Tiwari & B. S.Adhikari, Nordic J. Bot. 29(2): 185, 2011. (BERBERIDACEAE)

This new species was discovered and described based on collections made from Pindar valley, Munyali, Uttarakhand at an altitude of about 2340m. The holotype and paratypes are deposited in the herbarium of Wildlife Institute of India, Dehradun and Forest Research Institute, Dehradun (DD) respectively. The species is named in honour of well-known plant ecologist Dr. G. S. Rawat, formerly at Wildlife Institute of India, Dehradun.

Brachystelma pullaiahii Ravi Prasad Rao, Prasad, Sadasivaiah, Khadar Basha, Suresh Babu and Prasanna, Taiwan 56(3): 223, 2011. (APOCYNACEAE)

This new species was discovered and described based on collections made from Nallamalais, Sikaram hills, Kurnool district, Andhra Pradesh at an altitude of about 602m. The holotype is deposited in the herbarium of Botanical Survey of India, Deccan Regional Centre, Hyderabad (BSID) and isotypes are deposited in the herbarium of Sri Krishnadevaraya University, Anantpur, Andhra Pradesh (SKU) and Central National Herbarium, Botanical Survey of India, Howrah (CAL) respectively. The species is named in honour of Dr. T. Pullaiah, Professor of Botany at Sri Krishnadevaraya University, Anantapur for his great contribution towards the floristic studies of Andhra Pradesh.





Canscora devendrae R.Kr.Singh & Diwakar, Indian J. Forest. 34(2): 249. 2011. (GENTIANACEAE)



This new species was discovered and described based on collections made from Manmanhara plateau, Mookambika Wildlife Sanctuary, Udupi district, Karnataka. The holotype and isotypes are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and paratypes in Botanical Survey of India, Western Regional Centre, Pune (BSI). The species is named in honour of Dr. D. K. Singh, Scientist 'F', Botanical Survey of India, Kolkata for his valuable contribution in the field of plant systematics of India.

Caralluma bicolor Ramch., S. Joseph, H. A. John & C. Sofiya, Nordic. J. Bot. 29(4): 447. 2011. (APOCYNACEAE)

This new species was discovered and described based on collections made from Bharathiar University Campus, Coimbatore, Tamil Nadu at an altitude of about 450m. The holotype and isotypes are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Southern Regional Centre, Coimbatore (MH) respectively. The specific epithet refers to the striking two-coloured corolla.



Caralluma moorei Aditya, Asklepios 110: 7. 2011. (APOCYNACEAE)

This new species was discovered and described based on cultivated material originally collected from Kuldiha Wildlife Sanctuary, Balasore District, Odisha at an altitude of about 195 m. The holotype is deposited in the herbarium of the Royal Botanic Gardens, Kew (K). The species is named in memory of Dr. Chris Moore, member of the International Asclepiad Society who suddenly expired in 2009.

Carex sanjappae M. Bhaumik & M. K. Pathak, *Taiwania* 56(4): 309, 2011. (CYPERACEAE)

This new species was discovered and described based on collections made from Mehao Lake, Lower Dibang Valley district, Arunachal Pradesh at an elevation of about 1300m. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotype is deposited in Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). The species is named in honour of Dr. M. Sanjappa, former Director, Botanical Survey of India.



Codonopsis vadsea S.S.Dash & A.A.Mao, *Nelumbo* 53: 17, 2011. (CAMPANULACEAE)

This new species was discovered and described based on collections made from Vadse mountain, Kurung Kumey district, Arunachal Pradesh at an altitude of about 3800m. The holotype and isotype are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL). The species is named after the locality of its collection.



Corydalis amarnathiana Dar, Semi & Naqshi, *Taiwania* 56(4): 305, 2011. (FUMARIACEAE)

This new species was discovered and described based on collections made from Sind valley, near Amarnath shrine, Jammu & Kashmir at an altitude of about 3500 m. The holotype and paratypes are deposited in herbarium of University of Kashmir, Srinagar, Jammu & Kashmir (KASH). The specific epithet is named after the place 'Amarnath', the famous Hindu shrine in Kashmir, from where the species was first collected.





Crawfordia arunachalensis S. S. Dash, R. Gogoi & A. A. Mao, J. Jap. Bot. 86: 127, 2011. (GENTIANACEAE)

This new species was discovered and described based on collections made from Dzong, Tawang, Arunachal Pradesh. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL). The species is named after the state of its occurrence.

Curculigo maharashtrensis M.R. Almeida & S. Yadav, Fl. Maharashtra 5B: 401, 2009. (ZINGIBERACEAE)

This new species was discovered and described based on collections made from Malshej ghat area, Maharashtra. The holotype is deposited in the Herbarium of St. Xavier's College, Mumbai (BLAT). The species is named after state of its occurrence.

Curculigo savantwadiensis M.R. Almeida & S. Yadav, Fl. Maharashtra 5B: 402, 2009. (ZINGIBERACEAE)

This new species was discovered and described based on collections made from Savantwadi, Maharashtra. The holotype is deposited in the Herbarium of St. Xavier's College, Mumbai (BLAT). The species is named after the locality of its occurrence.

Eleocharis zatei W. Khan & Lakshmin., Bioinfolet 8(1): 5, 2011. (CYPERACEAE)

This new species was discovered and described based on collections made from Meppayyur (Proper), Kozhikode district, Kerala. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotypes and paratypes are in the herbarium of Dr. B. A. Marathwada University, Aurangabad. The species is named in honor of Dr. B. R. Zate, Principal, Shivaji College Parbhani, Maharashtra for his contribution in the field of plant taxonomy.

Eriocaulon malabaricum Pradeep & Nampy, Edinburgh J. Bot. 68(2): 257, 2011. (ERIOCAULACEAE)

This new species was discovered and described based on collections made from Kuppadi hills, Sulthan Bathery, Waynad district, Kerala at an elevation of about 920m. The holotype is deposited in the Herbarium of Department of Botany, University of Calicut (CALI) and isotypes are deposited in the herbarium of St. Joseph's College, Devagiri, Kozhikode, Kerala (DEV) and Royal Botanic Gardens, Edinburgh (E). The species is named after 'Malabar', one of the floristically rich regions in southern India, which includes the locality of its collection.

Eriocaulon pykarensense Nampy & Manudev, Edinburgh J. Bot. 68(2): 260, 2011. (ERIOCAULACEAE)

This new species was discovered and described based on collections made from Pykara, Nilgiris district, Tamil Nadu. The holotype is deposited in the Herbarium of Department of Botany, University of Calicut (CALI) and isotypes are deposited in the herbarium of St. Joseph's College, Devagiri, Kozhikode, Kerala (DEV) and Royal Botanic Gardens, Edinburgh (E). The species is named after the locality of collection.

Fimbristylis bhuskutii W. Khan & R.D. Taur, Bioinfolet 8(1): 224, 2011. (CYPERACEAE)

This new species was discovered and described based on collections made from Amboli ghats, Sindhurg district, Maharashtra. The holotype is deposited in the herbarium of Dr. B. A. Marathwada University, Aurangabad and the isotypes and paratypes are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and herbarium of Dr. B. A. Marathwada University, Aurangabad. The species is named in honour of Dr. S. M. Bhuskute, Principal, Bhawbhuti College, Amgaon, Gondia district, Maharashtra for his contribution in the field of plant taxonomy.

Fimbristylis nairii W. Khan & Rakhonde, Bioinfolet 8(1): 225. 2011. (CYPERACEAE)

This new species was discovered and described based on collections made from Amboli road, Sawantwadi, Sindhudurg district, Maharashtra. The holotype is deposited in the herbarium of Dr. B. A. Marathwada University, Aurangabad. The isotypes are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and herbarium of Dr. B. A. Marathwada University, Aurangabad. The species is named in honour of Dr. V.J. Nair, former Scientist E, Botanical Survey of India, Coimbatore for his contribution in the field of plant taxonomy.

Fimbristylis poklii W. Khan, Bhuskute & Kahalkar, Bioinfolet 8(1): 3. 2011. (CYPERACEAE)

This new species was discovered and described based on collections made from Fukkimetta hill, Amgaon, Gondia district, Maharashtra. The holotype and isotypes are deposited in the herbarium of Dr. B. A. Marathwada University, Aurangabad. The species is named in honour of Dr. D.S. Pokle, former Head, Department of Botany, Dr. B. A. Marathwada University, Aurangabad for his contribution in the field of plant taxonomy.

Fimbristylis sivarajanii W. Khan & R.D. Taur, Bioinfolet 8(1): 226. 2011. (CYPERACEAE)

This new species was discovered and described based on collections made from near Bharatidasan University, Tiruchirapalli district, Tamil Nadu. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL), and the isotypes and paratypes are deposited in the herbarium of Dr. B. A. Marathwada University, Aurangabad. The species is named in honour of Prof. V. V. Sivaranjan, University of Calicut, Kerala for his valuable contribution in the field of plant taxonomy.

Glyphochloa maharashtraensis Potdar & S.R. Yadav, Kew Bull. 66: 1. 2011. (POACEAE)

This new species was discovered and described based on collections made from Udgeri, Kolhapur district, Maharashtra. The holotype is deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and the isotypes are deposited in the herbarium of St. Xavier's College, Mumbai, Maharashtra (BLAT), Botanical Survey of India, Western Regional Centre, Pune (BSI), Royal Botanic Gardens, Kew (K) and Shivaji University, Kolhapur (SUK). The species is named after the state of its occurrence.



Courtesy: M. Sabu

Hedychium nagamiense Sanoj, M. Sabu & V.P. Thomas,

Bangladesh J. Plant Taxon. 18(2): 172. 2011. (ZINGIBERACEAE)

This new species was discovered and described based on collections made from Way to Aichen, Mokochung district, Nagaland. The holotype is deposited in the Herbarium of Department of Botany, University of Calicut (CALI) and isotypes are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Southern Regional Centre, Coimbatore (MH). The species is named after a major ethnic group of Nagaland.



Impatiens veerapazhasii Ratheesh, Sujanapal & Meera, J. Bot. Res. Inst. Texas 5 (1): 154, 2011.

(BALSAMINACEAE)

This new species was discovered and described based on collections made from Kurichiarmala, Wayanad district, Kerala. The holotype is deposited in the herbarium of the Botanical Survey of India, Sothorn Regional Centre, Coimbatore (MH-I) and the isotypes are deposited in the herbarium of Department of Botany, University of Calicut (CALI) and M.S. Swaminathan Research Foundation, Kolpetta, Puthoorvayal, Kerala. The specific epithet is in honour of Pazhassiraja, a great freedom fighter popularly known as the 'Lion of Kerala'.



Impatiens vivekananthanii J.R.N.Dessai & Janarth., Rheedea 21 (1): 58, 2011 (BALSAMINACEAE)

This new species was discovered and described based on collections made from Talacauvery, Kodagu district, Karnataka. The holotype is deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotypes are deposited in Botanical Survey of India, Western Regional Centre, Pune (BSI) and Botanical Survey of India, Sothorn Regional Centre, Coimbatore (MH). This species is named in honour of Mr. K. Vivekananthan, former Scientist of BSI, Coimbatore for his contribution to taxonomy of Balsaminaceae.

Ischaemum sayajiraoi Raole & R. J. Desai, Kew Bull. 66: 303, 2011. (POACEAE)

This new species was discovered and described based on collections made from Bacrol, Vadodra district, Gujarat. The holotype and isotypes are deposited in the herbarium of Maharaja Sayajirao University of Baroda, Baroda (BARO) and Royal Botanic Gardens, Kew (K) respectively. The species is named in honour of 'Maharaja Sayajirao' of Vadodara state and the founder of Baroda College.

Lactuca erostrata Roohi Bano & Qaiser, Pakistan J. Bot. 43(5): 2261. 2011. (ASTERACEAE)

This new species was discovered and described based on collections made from Baltistan, Kashmir. The holotype is deposited in herbarium of Karachi University, Karachi (KUH). The species name is derived from its beakless cypsela.

Lasianthus chowdheryi Karthig., Jayanthi & Sumathi, Nordic J. Bot. 29(4): 451. 2011. (RUBIACEAE)

This new species was discovered and described based on collections made from Rutland Island, South Andaman, Andaman & Nicobar Islands at elevation of about 100-200m. The holotype and isotypes are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair (PBL) respectively. The species is named in honour of Dr. H.J. Chowdhery, Emeritus Scientist, Botanical Survey of India, Dehradun, for his contributions to Flora of India.



Ledebouria karnatakensis Puneekar & Lakshmin., Fl. Anshi N.P., Western Ghats - Karnataka 500. 2011. (HYACINTHACEAE)

This new species was discovered and described based on collections made from Anshi National Park, Uttara Kannada, Karnataka. The holotype and isotypes are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Western Regional Centre, Pune (BSI) respectively. The species is named after the state of its occurrence.

***Litsea kakkachensis*** R. Ganesan, *Rheedea* 21 (2): 143. 2011. (LAURACEAE)

This new species was discovered and described based on collections made from Kakkachi in Kalakad Mundanthurai Tiger Reserve, Tirunelveli district, Tamil Nadu. The holotype is deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and the isotypes are deposited in the herbarium of Botanical Survey of India, Southern Regional Centre, Coimbatore (MH); Royal Botanic Gardens, Kew (K) and Ashoka Trust for Research in Ecology and the Environment, Bengaluru (ATREE). The species is named after the locality of its occurrence.



Courtesy: Mayur Nandkar

Murdannia brownii Nandkar & Gurav, *Taiwania* 56 (3): 227. 2011. (COMMELINACEAE)

This new species was discovered and described based on collections made from Morjai plateau, Borbet, Gaganbawda Tahsil, Kolhapur district, Maharashtra at an altitude of about 970m. The holotype, isotypes and paratypes are deposited in the herbarium of Botanical Survey of India, Western Regional Centre, Pune (BSI) and Sri Krishnadevaraya University, Anantpur, Andhra Pradesh (SKU) respectively. The species is named after eminent Scottish botanist Robert Brown in appreciation of his great contribution to Commelinaceae.

***Murdannia satheeshiana*** Joby, Nisha & Unni, *Phytotaxa* 22: 41. 2011. (COMMELINACEAE)

This new species was discovered and described based on collections made from Sivanpara, Mathikettanshola National Park, Idukki District, Kerala. The holotype is deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotypes are deposited in Herbarium of Department of Botany, University of Calicut (CAU), Botanical Survey of India Southern Regional Centre, Coimbatore (MH) and Herbarium, School of Environmental Sciences, Mahatma Gandhi University, Kottayam, Kerala. This species is named after late Dr R. Satheesh, Mahatma Gandhi University, Kottayam, Kerala for his contributions in the field of environmental sciences and biodiversity conservation.



Courtesy: P. K. Pusalkar

Paraquilegia gangotriana Pusalkar & D. K. Singh, Nelumbo 53: 221, 2011, (RANUNCULACEAE)

This new species was discovered and described based on collections made from Phulakdaru in Nilā valley, Tehri Garhwal (presently Uttarkashi district), Uttarakhand. The holotype and isotypes are deposited in the herbarium of Forest Research Institute, Dehradun (DD). The species is named after its type locality in the Gangotri National Park.

Scleria indica D.M. Varma & Veena Chandra, Indian J. Forest 34 (4): 503, 2011, (CYPERACEAE)

This new species was discovered and described based on collections made from Mt. Abu, Rajasthan. The holotype is deposited in the herbarium of Forest Research Institute, Dehradun (DD) and paratypes are deposited in the herbarium of Agharkar Research Institute, Pune (AMH) and Central National Herbarium, Botanical Survey of India, Howrah (CAL) respectively. The species is named after 'India', the country of its origin.

Scolopia parkinsonii N. Balach., Gastmans & Chakrab. Kew Bulletin 66 (4): 619, 2011, (FLACOURTIACEAE)

This new species was discovered and described based on collections made from North Cinque island, South Andaman of Andaman & Nicobar islands, India. The holotype is deposited in the Auroville Herbarium, Puduchery (AURO) and isotypes are deposited in AURO and Royal Botanical Garden, Kew (K). The species is named after C. E. Parkinson for his great contribution to the botany of the Andaman Islands.



Zingiber diwakarianum R. Kr. Singh, Indian J. Forest. 34 (2): 245, 2011, (ZINGIBERACEAE)

This new species was discovered and described based on collections made from Mahabaleshwar, Satara district, Maharashtra. The holotype and isotypes are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Western Regional Centre, Pune (BSI) respectively. The species is named in honour of Dr. P.G. Diwakar, Retired Scientist 'E', Botanical Survey of India, Western Regional Centre, Pune for his valuable contribution in the field of plant systematics.



Amorphophallus commutatus* (Schott) Engl. var. *anshiensis Puneekar, Lakshmin. & Sivad., Fl. Anshi N.P., Western Ghats-Karnataka 514, 2011. (ARACEAE)

This new variety was discovered and described based on collections from Anshi National Park, Uttara Kannada district, Karnataka. The holotype and isotypes are deposited in Botanical Survey of India, Central National Herbarium, Howrah (CAL) and Botanical Survey of India, Western Regional Centre, Pune (BSI). The variety is named after its type locality 'Anshi National Park'.



Calystegia hederacea* Wall. var. *longipedicellata Bhellum & Mangotra, J. Non-Timber Forest Prod. 18(2): 169, 2011. (CONVOLVULACEAE)

This new variety was discovered and described based on collections made from Srinagar, Jammu & Kashmir at an altitude of about 1600m. The holotype is deposited in the herbarium of Indian Institute of Integrative Medicine (formerly known as Regional Research Laboratory), Jammu (RRLH). The name of the variety is derived from distinct long pedicels.

Caralluma sarkariae* Lavranos & R.Frandsen var. *longipedicellata Aditya, Asklepios 110: 21, 2011. (APOCYNACEAE)

This new variety was discovered and described based on cultivated material originally collected from 15 km milestone, NH 49 West of Madurai, Madurai district, Tamil Nadu. The holotype is deposited in the herbarium of the Royal Botanic Gardens, Kew (K). The name of the variety is derived from the distinct long pedicels.

Carex speciosa* Kunth subsp. *varmae M. Bhaumik & M.K. Pathak, Taiwania 56 (4): 311, 2011. (CYPERACEAE)

This new subspecies was discovered and described based on collections made from Pao to Titapuri camp, Upper Siang district, Arunachal Pradesh at an elevation of about 3000m. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and paratypes are deposited in the CAL and the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). The subspecies is named in honour of Dr. S.K. Varma, former Head, P.G. Department of Botany, T.M. Bhagalpur University, Bhagalpur, Bihar and the teacher of the authors.



Ceropegia attenuata Hook. var. **mookambikae** Diwakar & R. Kr. Singh, Indian J. Forest. 34(2): 209. 2011. (ASCLEPIADACEAE)

This new variety was discovered and described based on collections made from Manmanhara plateau, Mookambika Wildlife Sanctuary, Udupi district, Karnataka. The holotype is deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotypes and paratypes are deposited in the herbarium of Botanical Survey of India, Western Regional Centre, Pune (BSI). The variety is named after name of the Wildlife Sanctuary from where it has been described.

Clitoria annua J. Graham var. **emarginata** S. L. Yadav & P.B. Dhanke, J. Bombay Nat. Hist. Soc. 107 (3): 268. 2010. (LEGUMINOSAE: PAPILIONOIDEAE)

This new variety was discovered and described based on collections made from Sawarna, Nashik district, Maharashtra. The holotype and isotypes are deposited in herbarium of St. Xavier's College, Mumbai, Maharashtra (BLAT) and Magdelin Almeida Environmental Centre, Savantwadi, Maharashtra (MAEC). The varietal name is derived from the emarginate nature of leaflet apices.

Crotalaria assamica Benth. var. **keralensis** Krishnaraj, N. Mohanan & V.T. Antony, Rheedea 21 (2): 153. 2011. (LEGUMINOSAE: PAPILIONOIDEAE)

This new variety was discovered and described based on collections made on way to Kaikatty forest, Nelliampathy, Palakkad district, Kerala at an altitude of about 900m. The holotype and isotypes are deposited in the herbarium, Jawaharlal Nehru Tropical Botanical Garden & Research Institute, Palode (TBGT) and National Herbarium, Nederland, Leiden (L) respectively. The variety is named after the state of its occurrence.

Curcuma amada Roxb. var. **glabra** Velay., Unnikr., Asha & Maya, J. Econ. Taxon. Bot. 33(1): 164. 2009. (ZINGIBERACEAE)

This new variety was discovered and described based on collections made from Punnamparamba, Thrissur, Kerala. The holotype and paratypes are deposited in the herbarium of National Bureau of Plant Genetic Resources, New Delhi (NBPGR). The varietal name is derived from its glabrous nature of leaf.



Curcuma longa L. var. **vanaharidra** Velay., Pandrav., J.K.George & Varapr. J. Econ. Taxon. Bot. 33(1): 173. 2009. (ZINGIBERACEAE)

This new variety was discovered and described based on collections made from Araku valley, Visakhapatnam district, Andhra Pradesh. The holotype and isotypes are deposited in the herbarium, National Bureau of Plant Genetic Resources, New Delhi (NBPGR).

Eleocharis atropurpurea (Retz.) Persl. var. **vengurlaensis** R.I.Shakh & R.D.Taur, Bioinfolet 8 (1): 7. 2011. (CYPERACEAE)

This new variety was discovered and described based on collections made from Vengurla, Sawantwadi, Sindhudurg district, Maharashtra. The holotype and isotypes are deposited in the herbarium of Dr. B.A. Marathwada University, Aurangabad. The variety is named after the locality of its occurrence.

Eleocharis geniculata (L.) Roem. & Schult. var. **kundalika** W.Khan & M.Sardesai, Bioinfolet 8 (1): 9. 2011. (CYPERACEAE)

This new variety was discovered and described based on collections made from Kundalika Dam, Wadwani, Beed district, Maharashtra. The holotype is deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL) and isotypes and paratypes are deposited in the herbarium of Dr. B.A. Marathwada University, Aurangabad. The variety is named after the locality of its occurrence.

Eragrostis tremula (Lam.) Hochst. ex Steud. var. **gajanandii** Genda Singh, Bala & C.S.Purohit, Indian Forester 137(6): 797. 2011. (POACEAE)

This new variety was discovered and described based on collections made from Barmer district, Rajasthan. The holotype and paratypes are deposited in the herbarium of Botanical Survey of India, Arid Zone Regional Centre, Jodhpur (BSJO) and Arid Forest Research Institute, Jodhpur respectively. The variety is named in honour of Dr. Gaganand Gupta, founder member of Arid Forest Research Institute, Jodhpur.

Eugenia terpnophylla Thw. var. **keralensis** S.M. Shareef, E.S. Kumar & P.E.Roy, Nordic J. Bot. 29 (4): 455. 2011. (MYRTACEAE)

This new variety was discovered and described based on collections made from Moozhiyar, Pathanamthitta district, Kerala at an altitude of about 1100m. The holotype and isotypes are deposited in the herbarium of Jawaharlal Nehru Tropical Botanical Garden & Research Institute, Palode (TBGT) and Botanical Survey of India Southern Regional Centre, Coimbatore (MH) respectively. The species is named after the state of its occurrence.

Fimbristylis nairii W.Khan & Rakhonde forma **chaukulensis** R.I.Shakh, Bioinfolet 8 (1): 226. 2011. (CYPERACEAE)

This new forma was discovered and described based on collections made from Chaukul, Sawantwadi, Sindhudurg district, Maharashtra. The holotype and isotypes are deposited in the herbarium of Dr. B.A. Marathwada University, Aurangabad. The forma is named after the locality of its occurrence.

Glyphochloa maharashtraensis Potdar & S.R.Yadav var. **hirsuta** Potdar & S.R.Yadav, Kew Bull. 66 (4): 4. 2011. (POACEAE)

This new variety was discovered and described based on collections made from Udgiri, Kolhapur district, Maharashtra. The holotype is deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) the isotypes are deposited in the herbarium of St. Xavier's College, Mumbai, Maharashtra (BLAT), Botanical Survey of India, Western Regional Centre, Pune (BSI), Royal Botanic Gardens, Kew (K) and Shivaji University, Kolhapur (SUK).



Courtesy: M. Sabu

Hedychium forrestii Diels var. **palaniense** Sanoj & M.Sabu, J. Bot. Res. Inst. Texas 4 (2): 634. 2010. (ZINGIBERACEAE)

This new variety was discovered and described based on collections made from Dindigul, on way to Palani Hills of Kodaikanal, Perumal Malai district, Tamil Nadu at an altitude of about 1380m. The holotype is deposited in the herbarium of Department of Botany, University of Calicut (CALI) and isotypes are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Southern Regional Centre, Coimbatore (MH). The varietal epithet has been derived from the type locality, i.e., 'Palani Hills', from where the variety has been described.

Scolopia kermodei C. E. C. Fisch. var. **minor** N. Balach., Gastmans & Chakrab. Kew Bulletin 66 (4): 620. 2011. (FLACOURTIACEAE)

This new variety was discovered and described based on collection of C. E. Parkinson made from Claudius range of Middle Andaman islands. Andaman & Nicobar Islands, India. The holotype is deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL). The varietal epithet has been derived from smaller size of the leaves and inflorescences.

Tripogon wightii Hook.f. var. **kanyakumariensis** Kabeer & V.J. Nair, Fl. Tamil Nadu: Grasses 183. 2009. (POACEAE)

This new variety was discovered and described based on collections made from Pechiparai, Thomarai, Mothiramalai, Kanyakumari district, Tamil Nadu. The holotype and isotypes are deposited in herbarium of Botanical Survey of India, Southern Regional Centre, Coimbatore (MH). The species is named after the district of its occurrence.

**Berneuxia** Decne. (DIAPENSIACEAE)

This genus earlier known from China, was reported for the first time from India based on collections made from Myodia hills, Lower Dibang Valley district, Arunachal Pradesh and Vadse hills, Kurung Kumey District, Arunachal Pradesh at an altitude of about 3800m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by S. S. Dash & A. A. Mao in Nelumbo 53: 228, 2011.

Sisyrinchium L. (IRIDACEAE)

This genus earlier known from Southern United States and Central America, was reported for the first time from India based on collections made from Pykara, Nilgiri district, Tamil Nadu at an altitude of about 1200m. The specimens are deposited in the Herbarium of Department of Botany, University of Calicut (CALI). It has been published by C. N. Sunil and A. K. Pradeep in Rheedeia 21(2): 170, 2011.



***Acrotrema uniflorum* Hook. (DILLENIACEAE)**

This perennial herb, earlier known from Sri Lanka, was reported for the first time from India based on collections from Moozhiyar, Pathanamthitta district, Kerala. The specimens are deposited in the herbarium of Jawaharlal Nehru Tropical Botanical Garden & Research Institute, Palode (TBGT). It has been published by E.S. Santhosh Kumar, P.E. Roy, N.B. Renjith and Mathew Dan in *Rheedea* 21 (2): 167, 2011.



***Alpinia luteocarpa* Elmer
(ZINGIBERACEAE)**

This shrub, earlier known to occur in USA, Canada, Philippines, and Thailand, was reported for the first time from India based on collection made from Nayasahar of South Andaman, Andaman & Nicobar Islands at an altitude of about 40m. The specimens are deposited in the herbarium of Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair (PBL). It has been published by C. Muruguran & M.Y. Kamble in *Indian Journal of Forestry* 34 (3): 334, 2011.

***Anredera cordifolia* (Tenore) Steenis (BASELLACEAE)**

This twining vine, native of South America, has been recorded for the first time from India based on collections made from Dindigul, Eastern Ghats, Tamil Nadu. The specimens are deposited in herbarium of Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore. It has been published by R. Kottaimuthu, R. Ganesan and R.Vijayan in *Elixir Bio Diver*, 40: 5517, 2011.

***Archidendron kerrii* (Gagnep.) I.C. Nielsen (LEGUMINOSAE: MIMOSOIDEAE)**

This moderate sized tree earlier known to occur in China, Laos and Vietnam, was reported for the first time from India based on collections made from Kane Wildlife Sanctuary, Arunachal Pradesh. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by S.S.Dash & M. Sanjappa in *Nelumbo* 53: 14, 2011.

***Berneuxia thibetica* Decne. (DIAPENSIACEAE)**

This species earlier known from China, was reported for the first time from India based on collections made from Myodia hills, Lower Dibang Valley district, Arunachal Pradesh and Vadse hills, Kurung Kumey District, Arunachal Pradesh at an altitude of about 3800m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by S. S. Dash & A. A. Mao in *Nelumbo* 53: 228, 2011.



Bulbophyllum restrepia (Ridl.) Ridl. (ORCHIDACEAE)

This epiphytic herb, earlier known from Peninsular Malaysia and New Guinea was reported for the first time from India based on collections made from East West Road, Galathea National Park, Great Nicobar Islands, Andaman & Nicobar Islands. The specimens are deposited in herbarium of Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair (PBL). It has been published by Joju P. Alappatt in *Rheedea* 21 (1): 84, 2011.



Chusua chrysea (W.W. Sm.) Hunt
(ORCHIDACEAE)

This terrestrial herb, earlier known from Bhutan and China, was reported for the first time from India based on collections made from Vadse Hills, Kurung Kumey district, Arunachal Pradesh. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN) and Orchid Research Centre, Tipi (OHT). It has been published by A. Nageshwar Rao, Ona Apang, A. A. Mao and S.S. Dash in *J. Orchid. Soc. India* 24 (1-2): 99, 2010.

Cyanotis recemosa B. Heyne ex Hassk. (COMMELINACEAE)

This terrestrial herb, earlier known from Sri Lanka was reported for the first time from India based on collections made from Kerala (Lockhart gap, Kottayam district), Karnataka (unknown locality), and Tamil Nadu (Dindigul district; Palni hills; Tirunelveli district and Kodaikanal). The specimens are deposited in herbarium of Botanical Survey of India Southern Regional Centre, Coimbatore (MH); St. Xavier's College, Mumbai, Maharashtra (BLAT) and St. Joseph's College, Devagiri, Kozhikode, Kerala (DEV). It has been published by Santhosh Namphy and Joby Paul in *Rheedea* 21 (1): 8, 2011.



***Gaultheria heteromera* R. C. Fang (ERICACEAE)**

This dwarf shrub, earlier known from China, was reported for the first time from India based on collections made from Vadse hills, Kurung Kumey District, Arunachal Pradesh at an altitude of about 3870m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by S. S. Dash & A. A. Mao in *Nelumbo* 53: 230, 2011.



***Globba wardii* (B. L. Burtt & R. M. Sm.) K. J. Williams (ZINGIBERACEAE)**

This terrestrial herb, earlier known from Myanmar, was reported for the first time from India based on collections made from Mizoram. The specimens are deposited in the herbarium of Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). It has been published by S. K. Singh and Ramesh Kumar in *Taiwania* 56 (3): 261, 2011.



***Hybanthus stellarioides* (Domin) P.I. Forst. (VIOLACEAE)**

This annual herb, earlier known from Australia and now in India from was reported for the first time from India based on collections made from Andhra Pradesh. The specimens are deposited in the herbarium of Botanical Survey of India, Deccan Regional Centre, Hyderabad (BSID). It has been published by M. Venkat Ramana, P.V. Prasanna and P. Venu in *Rheedea* 21 (1): 10, 2011.



***Kaempferia parviflora* Wall. ex Baker (ZINGIBERACEAE)**

This annual herb, earlier known from Bangladesh, Myanmar and Thailand was reported for the first time from India based on collections made from Diphu in South Assam and Mao in Nagaland at an elevation of about 180m. The specimens are deposited in the herbarium of Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). It has been published by A.A. Mao, M. Bhaumik and N. Lokho in *Indian Forester* 137 (11): 1353, 2011.

Courtesy : M. Bhaumik

***Liparis atrosanguinea* Ridl. (ORCHIDACEAE)**

This terrestrial herb, earlier known from Thailand, Vietnam, Peninsular Malaysia and Sumatra, was reported for the first time from India based on collections made from Andaman & Nicobar Islands. The specimens are deposited in the Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair (PBL). It has been published by R. Sumathi, J. Jayanthi and K. Karthigeyan in *Taiwania* 56 (3): 257. 2011.

***Memecylon macrocarpum* Thwaites. (MELASTOMATACEAE)**

This tree, was earlier known from Sri Lanka, was reported for the first time from India based on collections made from Courttalum, Tirunelveli district of Tamil Nadu at an altitude of about 400m. The specimens are deposited in the herbarium of Botanical Survey of India, Southern Regional Centre, Coimbatore (MH). It has been published C. Murugan & G.V.S Murthy in *J. Econ. Taxon. Bot.* 34 (3): 522. 2010

***Memecylon minutiflorum* Miq. (MELASTOMATACEAE)**

This tree was earlier known from Malaysia was reported for the first time from India based on collections made on way to Mount Harriet of South Andaman, A & N Islands at an altitude of about 30m. The specimens are deposited in the herbarium of Botanical Survey of India, Andaman and Nicobar Regional Centre, Port Blair (PBL). It has been published C. Murugan in *Indian J. Forestry* 34 (4): 469. 2011.

***Murdannia striatipetala* Faden (COMMELINACEAE)**

This herb, earlier known from Sri Lanka, was reported for the first time from India based on collections made from Red Hills lake, Thirumullaivoyal, in Chennai, Tamil Nadu at an altitude of about 28m. The specimens are deposited in the herbarium of Department of Botany, Shivaji University, Kolhapur (SUK). It has been published by Mayur D. Nandikar, R.V. Gurav & Divya Umesh in *J. Bombay Nat. Hist. Soc.* 108 (1): 67. 2011.



Rhododendron dekatanum Cowan (ERICACEAE)

This Terrestrial, lithophytic shrub, earlier known from China, was reported for the first time from India based on collections made from Zupuk to Tanjim La camp, West Siang, Arunachal Pradesh at an altitude of about 3300m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by A.A. Mao and M. Bhaumik in Nelumbo 53: 217, 2011.



Rhododendron pudorosum Cowan (ERICACEAE)

This small tree, earlier known from China, was reported for the first time from India based on collections made from Maratha army ground and Piso Lake, Tawang, Arunachal Pradesh at an altitude of about 3700m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by A.A. Mao and M. Bhaumik in Nelumbo 53: 218, 2011.

Sisyrinchium rosulatum E.P. Bicknell. (IRIDACEAE)

This species earlier known from Southern United States and Central America was reported for the first time from India based on collections made from Pykara, Nilgiri district, Tamil Nadu at an altitude of about 1200m. The specimens are deposited in the Herbarium of Department of Botany, University of Calicut (CALI). It has been published by C.N. Sunil and A. K. Pradeep in Rheedea 21(2): 170, 2011.



Stachyphrynium repens (Körn.) Suksathan & Borchs. (MARANTACEAE)

This perennial herb, earlier known from Cambodia, Southeast and peninsular Thailand, peninsular Malaysia and Indonesia was reported for the first time from India based on collections made from Baratang, Middle Andaman and Diglipur, North Andaman, Kalatang, South Andaman, Andaman and Nicobar Islands. The specimens are deposited in the herbarium of Botanical Survey of India, Andaman and Nicobar Regional Centre, Port Blair (PBL) and Department of Botany, University of Calicut (CALI). It has been published by T. Rajesh Kumar, M. Sabu and V.P. Thomas in Rheedea 21(2): 139, 2011.



Thottea celebica Ding Hou (ARISTOLOCHIACEAE)

This under shrub, earlier known from Malaysia, was reported for the first time from India based on collections made from Pulopanja, Little Nicobar Islands, Andaman and Nicobar Islands. The specimens are deposited in herbarium of Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair (PBL). It has been published by C. Murugan in 'Rheedea' 21 (2): 149, 2011.

Subspecies

Carex rara Boott subsp. **potanicola** T.Koyama (Cyperaceae)

This subspecies, earlier known from only from Sri Lanka, was reported for the first time from India based on collections made from Gundlabrahmeswaram Wildlife sanctuary, Andhra Pradesh. The specimens are deposited in the herbarium of Sri Krishnadevaraya University, Anantapur (SKU). It has been published by D. Veeranjanyula, M.V. Suresh Babu, M Bheemalingappa & B.Ravi Prasad Rao in J. Eco. Tax. Bot. 35(4): 652, 2011.

Hopea jucunda Thwaites subsp. **modesta** DC. (DIPTEROCARPACEAE)

This tree was earlier known from Sri Lanka was reported for the first time from India based on collections made from Puliyarai Kongo Peak, Courttalam hills, Tirunelveli district of Tamil Nadu at an altitude of about 450m. The specimens are deposited in the herbarium of Botanical Survey of India, Southern Regional Centre, Coimbatore (MH). It has been published by C. Murugan & R.Gopalan in J. Econ. Taxon. Bot. 34(3): 551, 2010.



Rhododendron glischrum Balf. f. & W. W. Sm. subsp. **rude** (Tagg & Forrest) D.F. Chamb. (ERICACEAE)

This shrub or small tree, earlier known from China, was reported for the first time from India based on collections made from Tankarla to Zupuk camp, West Siang, Arunachal Pradesh at an altitude of about 2800m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by A.A. Mao and M. Bhaumik in Nekumbo 53: 218, 2011.



Rhododendron sanguineum Franch. subsp. **sanguineum** var. **sanguineum** (ERICACEAE) This shrub, earlier known from China, was reported for the first time from India based on collections made from Vadse hills, Kurung Kumey District, Arunachal Pradesh at an altitude of about 3750m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by S. S. Dash & A. A. Mao in Nelumbo 53: 231, 2011.



Rhododendron thomsonii Hook. f. subsp. **lopsangianum** (Cowan) D.F. Chamb. (ERICACEAE)

This shrub or small tree, earlier known from China, was reported for the first time from India based on collections made from Zupuk to Tanjim La camp, West Siang, Arunachal Pradesh at an altitude of about 3300m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by A.A. Mao and M. Bhaumik in Nelumbo 53: 218, 2011.

Variety

Arnebia euchroma (Royle) I.M. Johnst. var. **grandis** (Borrm.) Kazmi (BORAGINACEAE)

This perennial herb, earlier known from Pakistan and Iran, was reported for the first time from India based on collections made from Changla, Ladakh, Jammu & Kashmir at an altitude of about 4800m. The specimens are deposited in herbarium of Botanical Survey of India, Northern Regional Centre, Dehradun (BSD). It has been published by A. N. Shukla, S. K. Srivastava and Kumar Ambrish in J. Jap. Bot. 86: 245, 2011.



Gaultheria trichophylla var. **eciliata** Rae & D.G. Long (ERICACEAE)

This dwarf shrub, earlier known from China and Bhutan, was reported for the first time from India based on collections made from Vadse hills, Kurung Kumey District, Arunachal Pradesh at an altitude of about 3800m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by S. S. Dash & A. A. Mao in Nelumbo



Leonotis nepetifolia (L.) R. Br. var. **africana** (P. Beauv.) J.K. Morton (LAMIACEAE)

This annual herb, earlier known from North East tropical Africa, was reported for the first time from India based on collections made from Andhra Pradesh. The specimens are deposited in the herbarium of Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Decan Regional Centre, Hyderabad (BSID). It has been published by M. Venkat Ramana, P.V. Prasanna, P. Venu and Avishek Bhattacharjee in *Taiwania* 56 (3): 254, 2011.



Lyonia villosa (Hook.f. ex C.B. Clarke) Hand.-Mazz. var. **sphaerantha** (Hand.-Mazz.) Hand.-Mazz. (ERICACEAE)

This shrub, earlier known from China and Myanmar, was reported for the first time from India based on collections made from Vadse hills, Kurung Kumey District, Arunachal Pradesh at an altitude of about 3450m. The specimens are deposited in the herbarium of Botanical Survey of India, Arunachal Pradesh Regional Centre, Itanagar (ARUN). It has been published by S. S. Dash & A. A. Mao in *Nelumbo* 53: 231, 2011.



FERNS & FERN-ALLIES

Courtesy : B.S. Kholia

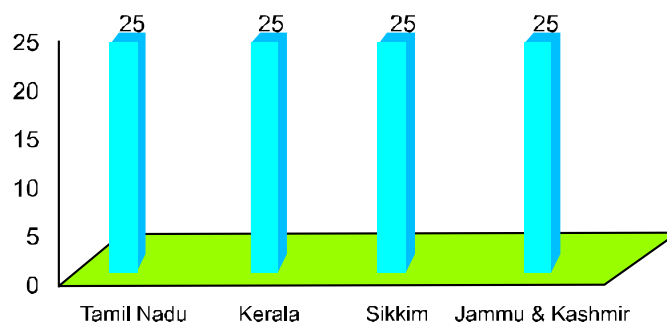
FERNS AND FERN-ALLIES

Ferns and Fern-allies (Pteridophytes) live in a wide variety of habitats and often succeed in places where environmental factors discourage growth of flowering plants.

The Indian ferns account for about 2 per cent of the total fern species of the world.

In the present state of our knowledge India has about 1,265 species of ferns and Fern-allies. Many more are yet to be identified and described.

The collated information presented here includes
02 new species (one each from Tamil Nadu and Kerala), 01 new subspecies from Sikkim
and
01 notho- species from Jammu & Kashmir



PERCENTAGE OF FERN & FERN ALLIES DISCOVERED FROM INDIAN STATES

New Species

Ferns

Asplenium lacinioides Fraser-Jenk., Pangtey & Khullar, Indian Fern J. 27(1-2): 211, 2011. (ASPLENIACEAE)

This new species was discovered and described based on collections made from Singhik, North district, Sikkim. The holotype is deposited in the herbarium of Panjab University, Chandigarh (PAN).

Selaginella lakkidiana Nisha, Namphy & Joby, Nordic J. Bot 28 (6): 665, 2010. (SELAGINELLACEAE)

This new species was discovered and described based on collections from Lakkidi, Wayanad district Kerala. The holotype is deposited Herbarium of Department of Botany, University of Calicut (CALI) and the isotypes are deposited in the herbarium of St. Joseph's College, Devagiri Kozhikode. The specie is named after the locality from where the type was collected.

New Subspecies

Asplenium laciniatum D.Don subsp. ***fraser-jenkinsii*** Reichst. ex Pangtey & Khullar, Indian Fern J. 27(1-2): 185, 2011. (ASPLENIACEAE)

This new subspecies was discovered and described based on collections made from near Kakasholai stream, Arcadia Coffee Estate, Salem district, Tamil Nadu at an elevation of about 1550m. The holotype is deposited in the herbarium of the Natural History Museum, London (BM) and paratypes are deposited in the herbarium of the Natural History Museum, London (BM) and National Museums & Galleries of Wales, Cardiff (NMW). The subspecies is named after C.R. Fraser-Jenkins for his contribution to Indian Pteridology.

New Notho-Species

Asplenium × sobtianum Fraser-Jenk., Pangtey & Khullar, Indian Fern J. 27(1-2): 211, 2011. (ASPLENIACEAE)

This hybrid species was discovered and described based on collections made from Batote, Near Doda, Jammu & Kashmir. The holotype is deposited in the herbarium of the Natural History Museum, London (BM) and the isotypes National Botanical Research Institute, Lucknow (LWG).



BRYOPHYTES

Courtesy : S.K. Singh

BRYOPHYTES

Bryophytes, the amphibians of the 'Plant Kingdom', and the second largest group of green plants next only to the angiosperms constitute a fascinating component of biodiversity and are widely spread in almost all climatic conditions. They are among the very few groups of plants found in Antarctica.

The Indian bryophytes account for about 15 per cent of the total Bryophyte species of the world.

In the present state of our knowledge India has about 2,479 species of bryophytes. Many more are yet to be identified and described.

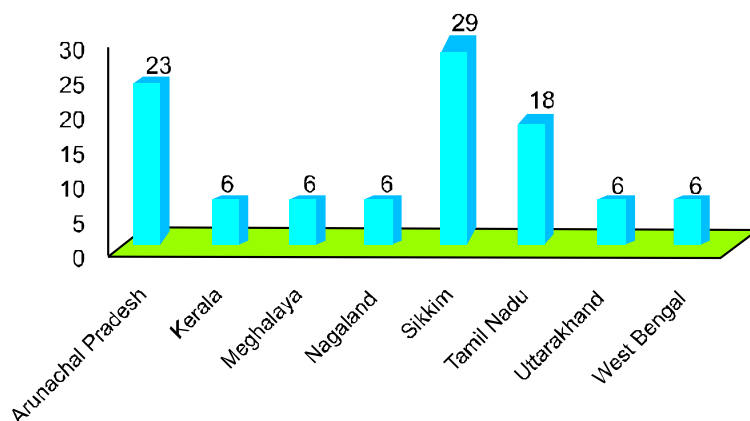
The collated information presented here includes

03 new species from India

(02 species from Arunachal Pradesh and 01 species from West Bengal)

And

13 new distributional records



PERCENTAGE OF BRYOPHYTES DISCOVERED FROM INDIAN STATES

Calypogeia udarii Sudipa Das & D.K.Singh, Nelumbo 53: 194, 2011. (CALYPOGEIACEAE)

This new species was discovered and described based on collections made from Mayodia top, Mehao Wildlife Sanctuary, Lower Dibang Valley district, Arunachal Pradesh at an altitude of about 2850 m. The holotype is deposited in herbarium of Botanical Survey of India, Northern Regional Centre, Dehradun (BSD). The species has been named after eminent Indian bryologist, late Prof. Ram Udar, FNA for his immense contribution towards the taxonomy of Indian liverworts and hornworts.

Lopholejeunea udarii M.Dey & D.K.Singh, Nelumbo 53: 197, 2011. (LEJEUNEACEAE)

This new species was discovered and described based on collections made on way to Dupu from Rungo (Naying), West Siang district, Arunachal Pradesh at an altitude of about 750m. The holotype is deposited in herbarium of Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). The species has been named after late Prof. Ram Udar, FNA for his invaluable contributions to Indian Hepaticology.



Rectolejeunea devendrae Shushil K.Singh, Indian J. Forest 34 (3): 341, 2011. (LEJEUNEACEAE)

This new species was discovered and described based on collections made from A.J.C Bose Indian Botanic Garden, Howrah, West Bengal. The holotype and isotypes are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL) and Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) respectively. The species is named after mentor of the author, Dr. D.K. Singh, Scientist F, Botanical Survey of India, Kolkata.



SPECIES

Cololejeunea aequabilis (Sande Lac.) Schiffn. (LEJEUNEACEAE)

This epiphyllous species, earlier known from China, Japan, Indonesia, Malaysia, Papua New Guinea, Philippines, Samoa, Vietnam, Cambodia and Caroline Islands was reported for the first time from India based on collections made from Shergaon, West Kameng district, Arunachal Pradesh at an elevation of about 1950m. The specimens are deposited in the herbarium of Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). It has been published by Monalisa Dey and D. K. Singh in J. Bryol. 33 (2): 163. 2011.



Cololejeunea bhutanica Grolle & Mizut. (LEJEUNEACEAE)

This epiphyllous species, earlier known from Nepal, Bhutan and China, was reported for the first time from India based on collections made from Ribdi, West district, Sikkim at an elevation of about 2430m. The specimens are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL). It has been published by Monalisa Dey and D.K.Singh in J. Bryol. 33 (2): 164. 2011.

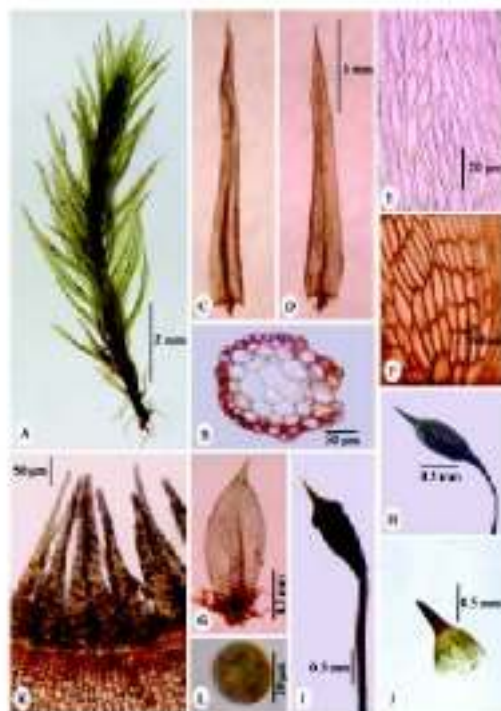


Cololejeunea dozyana (Sande Lac.) Schiffn. (LEJEUNEACEAE)

This epiphyllous species, earlier known from Nepal, China, Indonesia, Malaysia and Philippines, was reported for the first time from India based on collections made from Takhre, West district, Sikkim at an elevation of about 2430m. The specimens are deposited in Central National Herbarium, Botanical Survey of India, Howrah (CAL). It has been published by Monalisa Dey and D. K. Singh in J. Bryol. 33 (2): 165. 2011.

Cololejeunea serrulata Steph. (LEJEUNEACEAE)

This epiphyllous species, earlier known from China, Indonesia, Malaysia and Vietnam was reported for the first time from India based on collections on way to Mechuka from Rego, West Siang district, Arunachal Pradesh, at an elevation of about 1700m and Ranju Valley, Darjeeling district, West Bengal. The specimens are deposited in the Herbarium of Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) and Central National Herbarium, Botanical Survey of India, Howrah (CAL) respectively. It has been published by Monalisa Dey and D. K. Singh in J. Bryol. 33 (2): 165. 2011.



Daltonia angustifolia Dozy & Molk. (DALTONIACEAE)

This closely packed turf-forming species, earlier known from Central Africa, China, Indonesia, Madagascar, Malaya, Nepal, New Guinea, New Zealand, Philippines, Sri Lanka and Vietnam was reported for the first time from India based on collections made from Agasthyamalai, in Tirunelveli District, Western Ghats, Tamil Nadu at an altitude of about 1860m. The specimens are deposited in the Herbarium of Scottish Christian College, Nagercoil, Tamil Nadu and Central National Herbarium, Botanical Survey of India, Howrah (CAL). It has been published by A.E.D. Daniels, K.C. Kariyappa and P. Daniel in Nelumbo 53: 133, 2011.



Daltonia contorta Müller Hal. (DALTONIACEAE)

This closely packed turf-forming species, earlier known from Fiji, Hawaii, Indonesia, Malaya, Philippines and Sri Lanka was reported for the first time from India based on collections made from Agasthyamalai, in Tirunelveli District, Western Ghats, Tamil Nadu at an altitude of about 1860m. The specimens are deposited in the Herbarium of Scottish Christian College, Nagercoil, Tamil Nadu and Central National Herbarium, Botanical Survey of India, Howrah (CAL). It has been published by A.E.D. Daniels, K.C. Kariyappa and P. Daniel in Nelumbo 53: 136, 2011.

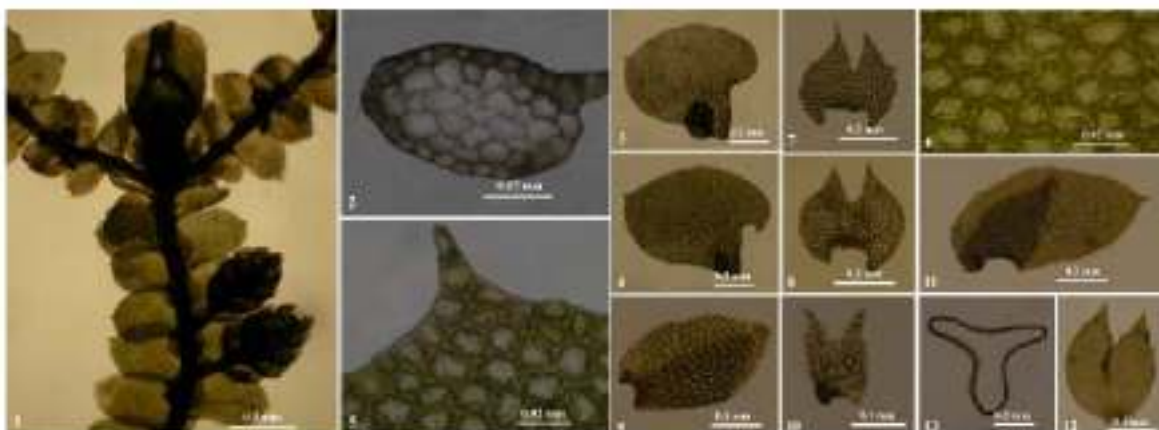
Erpodium dorningense (Sprengel) Müller Hal. (ERPODIACEAE)

This species, earlier known from Central America and nearby pacific Islands, was reported for the first time in India based on the collection made from Nehru park in Umiam, near Shillong, Meghalaya at an altitude of c. 3347 ft. The specimens are deposited in the Bryophyta herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by A.K. Astana, Vinay Sahu and Anita Srivastava in Nat. Acad. Sci. Lett. 34 (7&8): 263, 2011.



***Grimmia funalis* (Schwagr.) Bruch & Schimp. (GRIMMIACEAE)**

This cushion forming species, earlier known from Nepal, China, Japan, Europe, North Africa, North America and Australia was reported for the first time from India based on collections made from Parambikulam Tiger Reserve, Palakkad district, Kerala, at an altitude of about 1400 m. The specimens are deposited in the Herbarium of Department of Botany, University of Calicut (CAU). It has been published by C. N. Manju and K. P. Rajesh in *Taiwania* 56(1): 81, 2011.



***Jubula pennsylvanica* (Steph.) A. Evans (JUBULACEAE)**

This epiphyllous species, earlier known from North America, was reported for the first time from India based on collections made from Dalapchand and Pendung Khola, East district, Sikkim at an elevation of about 1650m. The specimens are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL). It has been published by Monalisa Dey, Devendra Singh and D. K. Singh in *Taiwania* 56 (1): 66, 2011.

***Lejeunea kodamae* Ikegami & Inoue (LEJEUNEACEAE)**

This species, earlier known from Japan was reported for the first time from India based on collections made on way to Mussoorie, Uttarakhand. The specimens are deposited in the herbarium of Department of Botany, University of Lucknow, Uttar Pradesh (LWU). It has been published by Geeta Asthana and Murti Saxena in *J. Bryol.* 33 (1): 89, 2011.

***Plagiochila grossa* Grolle & M.L. So (PLAGIOCHILACEAE)**

This species, earlier known from China, was reported for the first time from India based on collections made from Agasthyamalai, Tirunelveli District, Western Ghats, Tamil Nadu at an altitude of about 1800m and Muthukuzhivayal, Kanyakumari district, Tamil Nadu at an elevation of about 1110m. The specimens are deposited in the Herbarium of Scottish Christian College, Nagercoil, Tamil Nadu. It has been published by A.E.D. Daniels and J. L. Mabel in *Lindbergia* 33: 80, 2010.



***Plagiochila hyalodermica* Grolle & M.L.Sa.
(PLAGIOCHILACEAE)**

This species, earlier known from Nepal and China, was reported for the first time from India based on collections made from Shingba, North district, Sikkim at an elevation of about 3400m. The specimens are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL). It has been published by Devendra Singh and D.K. Singh in Indian J. Forest, 34(4): 465, 2011.



***Ptilidium pulcherrimum* (G. Weber) Vainio (PTILIDIACEAE)**

This species, earlier known from China, Japan, Europe and North America, was reported for the first time from India based on collections made from 4 km from Shiva mandir towards Zero point, North district, Sikkim at an elevation of about 4270m. The specimens are deposited in the Central National Herbarium, Botanical Survey of India, Howrah (CAL). It has been published by Devendra Singh and D.K. Singh in Nelumbo 53: 205, 2011.

VARIETY

***Thuidium recognitum* (Hedw.) Lindb. var. *delicatulum* (Hedw.) Warnst.**

This variety, cosmopolitan in distribution but was reported for the first time from India based on the collection on the way to Dikhu river, Mokokchung, North Eastern hills, Nagaland. The specimens have been deposited in the Bryophyte Herbarium, National Botanical Research Institute, Lucknow (LWG). It has been published by Virendra Nath, Pooja Bansal and A. K. Asthana, Taiwania, 56(4): 333, 2011.



LICHENS

Courtesy: M. Saniappa

LICHENS

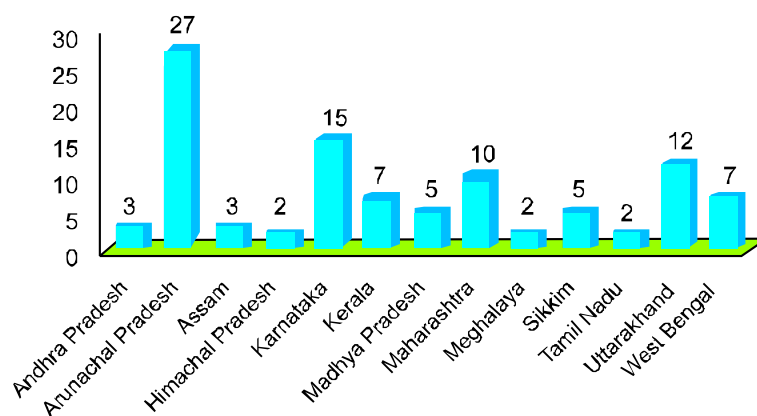
Lichens are symbiotic association of a fungus with a photosynthetic partner usually a green alga or cyanobacterium. Lichens are widespread, however many species are sensitive to environmental disturbances and may be useful in assessing the effect of air pollution. Lichens have also been used in making dyes and perfumes as well as in traditional medicines.

The Indian Lichens account for about 17 per cent of the total species of the world.

In the present state of our knowledge India has about 2333 species of lichens. Many more are yet to be identified and described.

The collated information presented here includes 13 new species (03 species from Arunachal Pradesh, 02 species each from Kamataka, Maharashtra and West Bengal, 01 species each from Meghalaya, Himachal Pradesh, Tamil Nadu and Uttarakhand.

01 new variety from Uttarakhand and 27 new distributional records of lichens from India



PERCENTAGE OF LICHENS DISCOVERED FROM INDIAN STATES



Carbacanthographis albolirellata B.O.Sharma & Khadilkar, Lichenologist 43 (5): 293, 2011. (GRAPHIDACEAE)

This new species was discovered and described based on collections made from near Daisy Bank, Kodaikanal, Tamil Nadu. The holotype is deposited in Ajrekar Mycological Herbarium, Pune (AMH).



Carbacanthographis indica B. O. Sharma & Khadilkar, Lichenologist 43 (5): 295, 2011. (GRAPHIDACEAE)

This new species was discovered and described based on collections made from Lagerstroemia forest, Garo hills, Meghalaya. The holotype is deposited in Ajrekar Mycological Herbarium, Pune (AMH). The species is named after the country of its origin.



Graphis elevat verrucosa Chitale, Makhija & B.O. Sharma, Mycotaxon 116: 470, 2011. (GRAPHIDACEAE)

This new species was discovered and described based on collections made from Amboli, Sindhudurg District, Maharashtra. The holotype is deposited in Ajrekar Mycological Herbarium, Pune (AMH). The name of the species is derived from the latin elevatus (elevated) and verrucosus (warty); a reference to highly elevated verruceae.



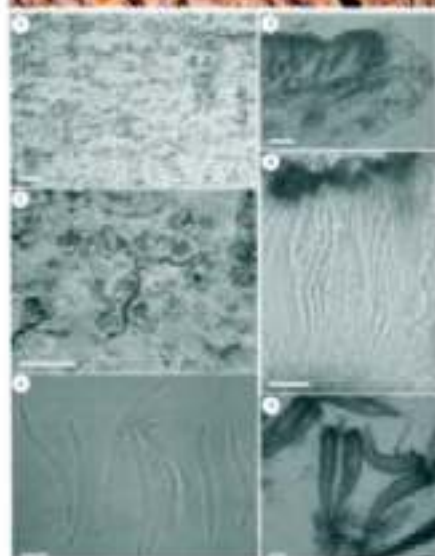
Graphis maharashtrana Chitale, Makhija & B.O. Sharma, Mycotaxon 115: 472, 2011. (GRAPHIDACEAE)

This new species was discovered and described based on collections made on the way to Ajra from Amboli, Sindhudurg district, Maharashtra. The holotype is deposited in Ajrekar Mycological Herbarium, Pune (AMH). The species is named after the state from where it was collected.



Graphis parvicarpa B.O. Sharma & Khadilkar. Lichenologist 43 (5): 487, 2011. (GRAPHIDACEAE)

This new species was discovered and described based on collections made from Nandi hills Chikkaballapur district, Karnataka. The holotype is deposited in Ajrekar Mycological Herbarium, Pune (AMH).



Graphidastra himalayana Jagadeesh Ram & G.P.Sinha, Geophytology 39(1-2): 83, 2011. (ROCELLACEAE)

This new species was discovered and described based on collections made from Allobari, Neora Valley National Park, West Bengal at an altitude of 2484m. The holotype is deposited in the herbarium Botanical Survey of India, Central Regional Centre, Allahabad (BSA) and the isotype is deposited in Central National Herbarium, Howrah (CAL). The species is named after region from where it has collected.

Hemithecium isidiatum Upreti & U. Dubey, Lichenologist 43 (5): 483, 2011. (GRAPHIDACEAE)

This new species was discovered and described based on collections made from Kago-Kashi forest, Near Kabu Village, Along, West Siang district, Arunachal Pradesh at an altitude of 250-500 m. The holotype and the isotypes are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG), and Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) respectively. The name of the species epithet is a reference to the presence of isidia, which are not known from other species of genus *Hemithecium* Trevis.



Herpothallon sticticum Jagadeesh & G.P.Sinha in Mycotaxon 116: 314, 2011. (ARTHONIACEAE)

This epiphytic new species growing on *Bombax* trunk, was discovered and described based on collections made from Jameri Road side, West Kameng District, Arunachal Pradesh at an altitude of 1200 m. The holotype is deposited in the herbarium of Botanical Survey of India, Central Regional Centre, Allahabad (BSA) and isotypes are deposited in herbarium of Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). The species name refers to the major secondary metabolite, stictic acid present in the plant.



Pallidogramme bengalense B.O.Sharma & Pradnya Khadilkar, Lichenologist 43(5): 489, 2011. (GRAPHIDACEAE)

This new species was discovered and described based on collections made from Kurseong, Darjeeling district, West Bengal, at an altitude of 1550 m. The holotype is deposited in Ayrekar Mycological Herbarium, Pune (AMH). The species is named after the state from where it was collected.



Phyllopsora catervisorediata G.K. Mishra, Upreti & Nayaka, Mycotaxon, 115: 33, 2011 (RAMALINACEAE)

This new species was discovered and described based on collections made enroute to Pindari glacier, from Dwalli to Khati, Bageshwar district, Uttarakhand at an altitude of about 3000m. The holotype is deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). The name of the species derived from the latin noun caterva (= group or heap), referring to the appearance of the soredia.



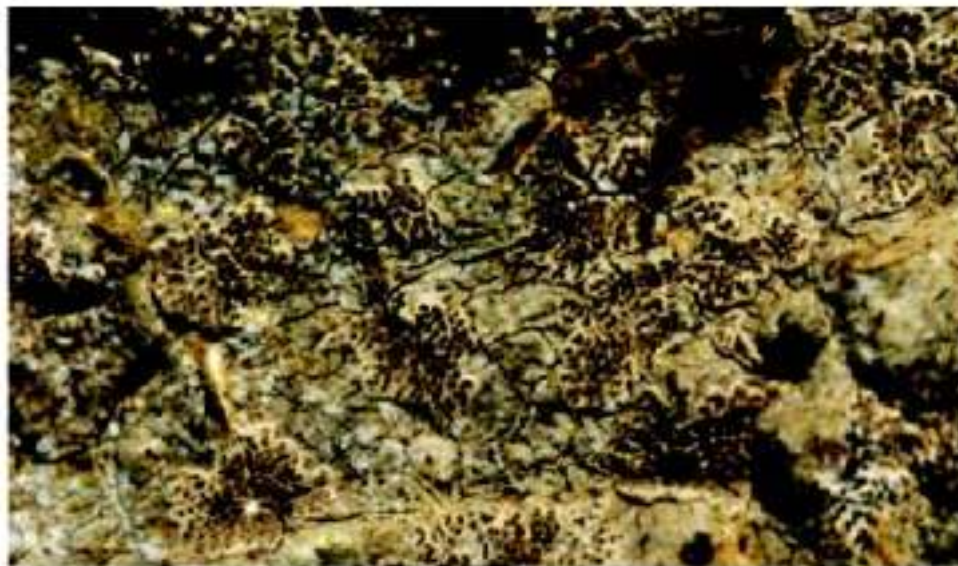
Phyllopsora himalayensis G.K. Mishra, Upreti & Nayaka, Mycotaxon, 115: 38, 2011 (RAMALINACEAE)

This new species was discovered and described based on collections made from Shit, Great Himalayan National Park, Kullu district, Himachal Pradesh, at an altitude of 2800 m. The holotype is deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). The name of the species derived from the Himalayas, the type locality.



Schistophoron indicum Kr. P.Singh & Swarnalatha, Lichenologist 43 (3):209, 2011. (GRAPHIDIACEAE)

This new species was discovered and described based on collections made from Gate Busti, East Siang district, Arunachal Pradesh at an altitude of 500-700m. The holotype is deposited in the herbarium of Botanical Survey of India, Central Regional Centre, Allahabad (BSA) and the isotypes are deposited in herbarium of Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). The species is named after the country of its occurrence.



Syncesia indica S. Joshi & Upreti. The Bryologist, 114: 215, 2011. (ROCCELLACEAE)

This new lichen species was discovered and described based on collections made from bark of a tree on way to Mangalore (Shiradighat) from Sakleshpur in Mangalore district, at an altitude of 770 m. The holotype and the isotypes are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). The name of the species is named after the country of its occurrence.

NEW VARIETY

Phyllopsora corallina var. *subglaucella* G.K. Mishra, Upreti & Nayaka. Mycotaxon, 115: 36, 2011
(RAMALINACEAE)



This new variety was discovered and described based on collections made on way to Thalkedar Temple, Pithoragarh district, Uttarakhand, at an altitude of 2200 m. The holotype is deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). The name of the species derived from the similarity to var. *glaucella*.

***Amparoina spinosissima* (Singer) Singer. (TRICHOLOMATACEAE)**

This species, earlier known to occur in Argentina, was reported for the first time from India based on collections made from Koyilandy, Calicut District, Kerala India. The specimens are deposited in the Herbarium of Department of Botany, University of Calicut (CALI). It has been published by Dollymol M. Aravindakshan & P. Manimohan in Mycotaxon, 114: 50, 2010.

***Caloplaca chalybaea* (Fr.) Müll. Arg. (TELOSCHISTACEAE)**

This species, earlier known, to occur from from Europe, Macaronesia, Asia, and Africa, North and Central America, was reported for the first time from India based on collections made from Madhya Pradesh and Tamil Nadu. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Yogesh Joshi & Dalip K. Upreti, Mycotaxon, 117: 54, 2011.

***Caloplaca litoricola* Brodo. (TELOSCHISTACEAE)**

This species, earlier known, to occur from from, Vancouver Island (North America), Washington to Alaska, was reported for the first time from India based on collections made along the shoreline of Vishakhapatnam district, Andhra Pradesh. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Yogesh Joshi & Dalip K. Upreti, Mycotaxon, 117: 55, 2011.

***Caloplaca lypera* Poelt & Hinter. (TELOSCHISTACEAE)**

This species, earlier known, to occur from Nepal, at an altitude of 2780 m, was reported for the first time from India based on collections made from temperate regions of Uttarakhand (Bageshwar district, Pithoragarh district) between elevations of 2200–3450 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Yogesh Joshi & Dalip K. Upreti, Mycotaxon, 117: 57, 2011.

***Caloplaca maura* Poelt & Hinter. (TELOSCHISTACEAE)**

This species, earlier known, to occur from, Khumbu region of Nepal, was reported for the first time from India based on collections made Giagaon, above Thanngu North Sikkim, at an altitude of 4600 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Yogesh Joshi & Dalip K. Upreti, Mycotaxon, 117: 58, 2011.



***Graphis creba* Vain (GRAPHIDIACEAE)**

This species, earlier known to occur in Australia and Guedeloupe, was reported for the first time from India based on collections made from Leb to Nuk Busti, Upper Subansiri district, Arunachal Pradesh. The specimens are deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). It has been published by K. P. Singh, and G. Swarnalatha in Indian J. Forest. 34 (3): 355, 2011.

**Graphis cycasicola** A. W. Archer & Elix (GRAPHIDIACEAE)

This species, earlier known to occur in Australia, was reported for the first time from India based on collections made from Shergaon forest, West Kameng district, Arunachal Pradesh. The specimens are deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) and Botanical Survey of India, Central Regional Centre, Allahabad (BSA). It has been published by K. P. Singh, G. Swamalatha and S.B. Singh in Indian J. Forest. 34 (2): 243.2011.

**Graphis daintreensis** (A. W. Archer) A. W. Archer (GRAPHIDIACEAE)

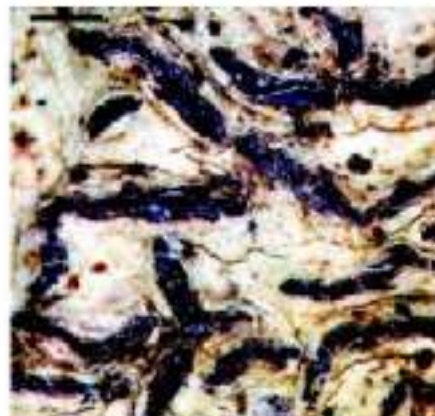
This species, earlier known to occur in Australia, Digo Garcia and Solomon Islands, was reported for the first time from India based on collections made from Bhalukpong, West Kameng district, Arunachal Pradesh. The specimens are deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) and Central Regional Centre, Allahabad (BSA). It has been published by K. P. Singh, and G. Swamalatha in Indian J. Forest. 34 (3): 355.2011.

**Graphis dimidiata** Vain (GRAPHIDIACEAE)

This species, earlier known to occur in Australia, Brazil and Dominica, was reported for the first time from India based on collections made from Chug Forest of Dirang forest Division, West Kameng district, Arunachal Pradesh. The specimens are deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM). It has been published by K. P. Singh and G. Swamalatha in Indian J. Forest. 34 (3): 355.2011.

**Graphis farinulenta** Mull. Arg. (GRAPHIDIACEAE)

This species, earlier known to occur in Costa Rica, was reported for the first time from India based on collections made from Sally Lake, Mehao Wildlife Sanctuary, Arunachal Pradesh. The specimens are deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) and Central Regional Centre, Allahabad (BSA). It has been published by K. P. Singh G. Swamalatha and S.B. Singh in Indian J. Forest. 34 (2): 243.2011.



Graphis galactoderma (Zahlbr.) Lücking (GRAPHIDIACEAE)

This species, earlier known to reported from the eastern palaeotropics, was reported for the first time from India based on collections made from Panhala, Kolhapur district, Maharashtra. The specimens are deposited in the herbarium of the Ajrekar Mycological Herbarium, Pune (AMH). It has been published by Gayatri Chitale, Urmila Makhija & Bharati Sharma in Mycotaxon 115: 471.2011.



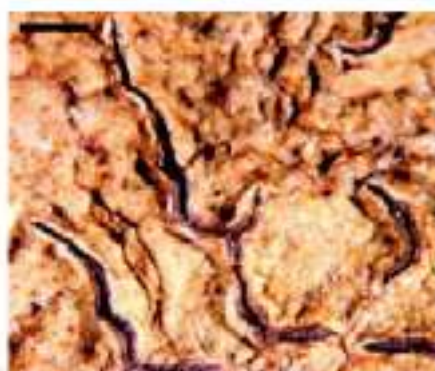
Graphis japonica (Müll. Arg.) A.W. Archer & Lücking (GRAPHIDIACEAE)

This species, earlier known to occur in Japan, was reported for the first time from India based on collections made from Daporizo, Upper Subansiri district, Arunachal Pradesh. The specimens are deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) and Central Regional Centre, Allahabad (BSA). It has been published by K. P. Singh, G. Swamalatha and S.B.Singh in Indian J. Forest, 34 (2): 243.2011.



Graphis kousyuensis (Hörlik. & M. Nakan.) Lücking (GRAPHIDIACEAE)

This species, earlier known to occur in Japan, was reported for the first time from India based on collections made from West Kameng district, Arunachal Pradesh. The specimens are deposited in the herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM) and Botanical Survey of India, Central Regional Centre, Allahabad (BSA). It has been published by K. P. Singh, G. Swamalatha and S.B. Singh in Indian J. Forest, 34(2): 244.2011.



Graphis parilis Krempf (GRAPHIDIACEAE)

This species, earlier known to occur in Brazil, Canada, Florida, Mexico and Japan, was reported for the first time from India based on collections made from Mahabaleswar, Satara district, Maharashtra. The specimens are deposited in the herbarium of the Ajrekar Mycological Herbarium, Pune (AMH). It has been published by Gayatri Chitale, Urmila Makhija & Bharati Sharma in Mycotaxon 115: 475. 2011.

***Herpothallon echinatum* Aptroot, Lücking & Will-Wolf (ARTHONIACEAE)**

This species was previously known from Australia, Indonesia, Norfolk Island, Papua New Guinea, Taiwan, and Thailand and has reported for the first time from Penengla, Siddim. The specimens are deposited in the herbarium of the Botanical Survey of India, Central Regional Centre, Allahabad (BSA). It has been published by Jagadeesh Ram & G.P.Sinha in *Mycotaxon*, 116:316, 2011.

***Opegrapha discolour* Vain (ROCELLACEAE)**

This species, earlier known to occur in Philippines, was reported for the first time from India based on collections made from Arbeshi, Sundarban Biosphere Reserve, West Bengal. The specimens are deposited in the herbarium of Botanical Survey of India, Central Regional Centre, Allahabad (BSA). It has been published by Siljo Joseph & G.P.Sinha in *Geophytology*, 40(1-2): 82, 2011.

***Opegrapha simplicior* (Nyl.) Nyl. (ROCELLACEAE)**

This species, earlier known to occur in East Africa, Sierra Leone, South Africa, Madagascar, New Caledonia, Australia, was reported for the first time from India based on collections made from Buribudri, Sundarban Biosphere Reserve, West Bengal. The specimens are deposited in the herbarium of Botanical Survey of India, Central Regional Centre, Allahabad (BSA). It has been published by Siljo Joseph & G.P.Sinha in *Geophytology*, 40(1-2): 84, 2011.

***Phyllopsora albicans* Müll. Arg. (RAMALINACEAE)**

This species, known to occur from the montane habitats of Africa, Costa Rica, Philippines and Taiwan, between altitudes of 540–2000 m, was reported for the first time from India based on collections made from tropical to sub-temperate areas in the state of Arunachal Pradesh and Kerala between altitudes 500–1500. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, *Mycotaxon*, 115: 31, 2011.



***Phyllopsora breviuscula* (Nyl.) Müll. Arg.**
(RAMALINACEAE)

This species, known to occur from Cuba, Mauritius, and La Réunion between altitudes of 300–1390 m, was reported for the first time from India based on collections made from the species is collected from tropical areas of Karnataka in western Ghat between altitudes of 100–500 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, Mycotaxon, 115: 32, 2011.



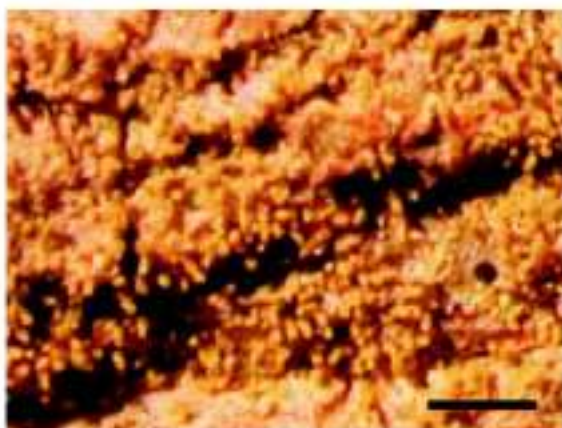
***Phyllopsora chlorophaea* (Müll. Arg.) Zahlbr.**
(RAMALINACEAE)

This species, earlier known, to occur from montane rainforest and humid woodland in Kenya, Peru, Mauritius, Tanzania, between altitudes of 600–1600 m, was reported for the first time from India based on collections made from tropical to subtemperate areas in the states of Karnataka and Orissa, between altitudes of 200–800 m tropical. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, Mycotaxon, 115: 33, 2011.



***Phyllopsora confusa* Swinscow & Krog.**
(RAMALINACEAE)

This species, earlier known, to occur from montane rainforest and humid woodland in Kenya, La Réunion, Mauritius, and Tanzania between altitudes of 130–2000 m, was reported for the first time from India based on collections made from tropical to temperate areas in the states of Assam, Himachal Pradesh, Karnataka, Kerala, and Uttarakhand between altitude 300–1800 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, Mycotaxon, 115: 34, 2011.



***Phyllopsora furfuracea* (Pers.) Zahlbr., in Engler & Prantl. (RAMALINACEAE)**

This species, earlier known, to occur from montane rainforest and humid woodland of Australia, Belize, Brazil, Colombia, Cuba, Cuzco, Dominican Republic, East Africa, Ethiopia, Ecuador, French Guiana, Ivory Coast, Jamaica, Java, Kenya, La Réunion, Loreto, Madagascar, Mexico, Peru, Tanzania, United States, and Venezuela from sea level to an altitude of 2400 m, was reported for the first time from India based on collections made from the states of Kerala and Uttarakhand between altitudes of 300–2500 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It

has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, *Mycotaxon*, 115: 37, 2011.



***Phyllopsora isidiotyla* (Vain.) Riddle (RAMALINACEAE)**

This species, earlier known, to occur from Brazil, Costa Rica, Venezuela, and United States, from sea level to an altitude of 3000 m, was reported for the first time from India based on collections made from tropical to temperate areas in the states of Assam, Himachal Pradesh, Karnataka, Kerala, Sikkim, Tamil Nadu, and Uttarakhand, between altitudes of 600–2700 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, *Mycotaxon*, 115: 39, 2011.



***Phyllopsora kalbii* Brako. (RAMALINACEAE)**

This species, earlier known, to occur from Brazil, Dominican Republic, Kenya, Tanzania, and United States between altitudes of 300–2400 m, was reported for the first time from India based on collections made from tropical areas in the state of Madhya Pradesh, between altitudes of 300–650 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, *Mycotaxon*, 115: 40, 2011.



***Phyllopsora mauritiana* (Taylor) Gotth. Schneid. (RAMALINACEAE)**

This species, earlier known, to occur from humid submontane forest in Tanzania and Mauritius between altitudes of 600–1500 m, was reported for the first time from India based on collections made from tropical to temperate areas in the state of Kerala and Tamil Nadu between altitudes of 800–1066 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, Mycotaxon, 115: 41, 2011.



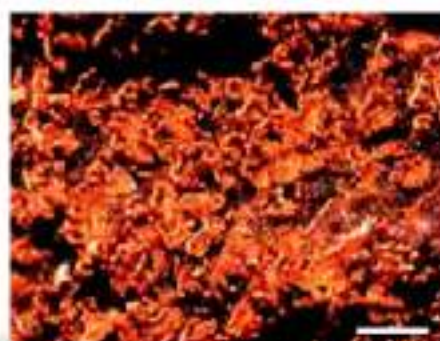
***Phyllopsora nemoralis* Timdal & Kro(RAMALINACEAE)**

This species, earlier known, from woodland in Tanzania, La Réunion and South Africa between altitudes of 1550–2010 m, was reported for the first time from India based on collections made from temperate areas in the state of Assam at an altitude of 1014 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, Mycotaxon, 115: 42, 2011.



***Phyllopsora subcrustacea* (Malme) Brako, (RAMALINACEAE)**

This species, earlier known, to occur only from Paraguay, was reported for the first time from India based on collections made from tropical areas in the states of Karnataka and Kerala between the altitudes of 300–800 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, Mycotaxon, 115: 42, 2011.



***Phyllopsora swinscowii* Timdal & Krog (RAMALINACEAE)**

This species, earlier known, from woodland in East Africa, Kenya, Mauritius, and Tanzania between altitudes of 300–1900 m was reported for the first time from India based on collections made from tropical areas in the states of Karnataka and Kerala, between altitudes of ca. 100–600 m. The specimens are deposited in the herbarium of National Botanical Research Institute, Lucknow (LWG). It has been published by Gaurav K. Mishra, Dalip K. Upreti, Sanjeeva Nayaka & Biju Haridas, Mycotaxon, 115: 43, 2011.



FUNGI

Courtesy : K. Das

FUNGI

Fungi distributed worldwide, perform an essential role in nature by decomposing organic matter and are indispensable in nutrient cycling.

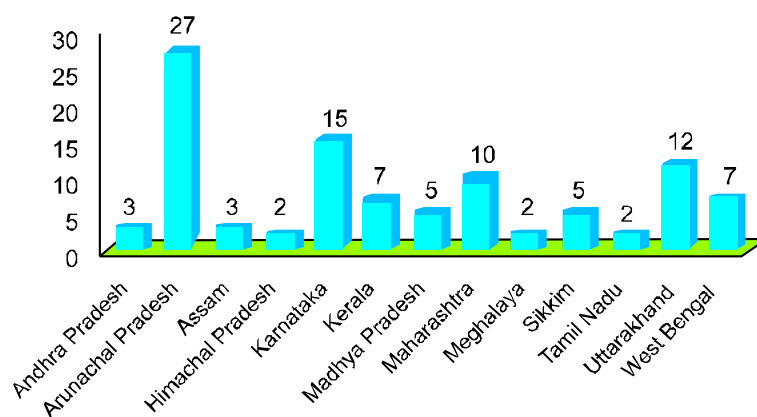
They have long been used as source of food and in fermentation of various food products and now they are an important source of antibiotics.

The Indian fungi account for about 20 per cent of the total species of the world. (In the present state of our knowledge India has about 14,698 species of fungi. Many more are yet to be identified and described.

The collated information presented here includes
02 new genera (one each from Arunachal Pradesh and Madhya Pradesh)
70 new species from India

(38 species from Kerala, 07 species from Madhya Pradesh and Karnataka, 04 species each from Tamil Nadu and Sikkim, 04 species from Maharashtra, 02 species each from Goa and Uttar Pradesh, 01 species each from Arunachal Pradesh and Uttarakhand.

05 new infra specific taxa (02 each from Kerala and Tamil Nadu and 01 from Maharashtra)
and
01 genus and 10 species as new distributional record for India.



PERCENTAGE OF FUNGI DISCOVERED FROM INDIAN STATES

Beltramono Dubey, Pandey & Monoharachary, J. Mycopathol. Res. 49 (2): 321. 2011. (DEMATIACEAE)

This new genus was discovered and described based on the collection made from from Shodol, Madhya Pradesh. The genus differs from its allied genera Beltraniella, Beltraniopsis, Psuedobeltrania, Hemibeltrania and Beltraniomyces by presence of single conidiophores derived directly from superficial mycelium, monoblastic codidigenous cells. The genus is monotypic. The name is derived from the single nature of conidiophore.

Dendrophlebia Dhirgra & Priyanka Mycotaxon 116: 157. 2011. (CORTICIACEAE)

This new genus has been described on the basis of a collection made from Dhirang, West Kameng district, Arunachal Pradesh on a decaying angiospermous stump. The new genus is allied to the Phlebia, but differs by presence of distinctly thickened walls in dendrohyphidia and basidiospores. The genus is monotypic and distributed in Arunachal Pradesh. The name of the genus is based on the presence of dendrohyphidia in addition to the characters of the genus Phlebia Fr.

NEW SPECIES

Amozonia palaquii Hosag. & P.J. Robin, Bioscience Discovery 2 (2): 264. 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Gavi, Pathanamthitta, Kerala. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HIO). The species name is derived from host plant *Palaquium* Blanco. (Sapotaceae).

Anaselenosporella indica Pratibha, Bhat & Raghuk, Mycotaxon 117: 269. 2011.

This new species was discovered and described based on collections made on dead twig of a tree from Bondla, Ponda, Goa. The holotype is deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HIO). The species name referring to the country from where the type was collected.

Appendiculella elaeocarpicola Hosag. & P.J. Robin, J. Threatened Taxa 3 (5): 1782. 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Chapathu, Ponthanpuzha, Kottayam, Kerala, India. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HIO) and isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Elaeocarpus tuberculatus* Roxb. (Elaeocarpaceae).

Arachnophora goanensis Pratibha, Bhat & Raghuk, Mycotaxon 117: 272. 2011.

This new species was discovered and described based on collections made on dry and decaying bark of a tree from Netravali, Sanguem, Goa. The holotype is deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HIO). The species name referring to the state from where the type was collected.

Asteridiella anacolosae Hosag., A. Sabeena & Jacob Thomas, Bioscience Discovery 2 (1): 117. 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Pathanamthitta, Sabrimala, Kerala, on leaves of *Anacolosa* sp. (Olacaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HIO). The species name is derived from host genus.





Asteridiella symploci-microphyllae Hosag. & A. Sabeena, Bioscience Discovery 2 (1): 118, 2011.

This new species was discovered and described based on collections made from Banasuramala, Wayanad, Kerala, on leaves of *Symplocos macrophylla* Wall. ex DC. (Symplocaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host genus.

Asteridiella toddaliae Hosag. & M.C.Riju, J. Threatened Taxa 3 (3): 1615, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Cheriavalakkad, Silent Valley National Park, Palakkad, Kerala, India. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Toddalia asiatica* (L.) Lam. (Rutaceae).

Asterina homonoiae Hosag. & A. Sabeena, Bull. Basic & Applied Pl. Bio. 1(1): 49, 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from Koruthodu, Kottayam, Kerala, on leaves of *Homonoia riparia* Lour. (Euphorbiaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The specific epithet is derived from the host genus.

Asterina hugoniae Hosag., A. Sabeena & M.C. Riju, J. Threatened Taxa 3 (6): 1880, 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from Malabar Botanic Garden, Kozhikode, Kerala, India. The holotype is deposited in the herbarium of Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Hugonia mystax* L. (Linaceae).

Asterina kukkalensis Hosag., V. Dhivaharan & M.C. Riju, J. Sci. Trans. Environ. Techno. 4(4): 164, 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from Periyakanal, Kukkal Shola Forest, Kodaikanal, Tamil Nadu on leaves of *Premna* sp. (Verbenaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species is named after the place from where the type was collected.

Asterina leucadis Hosag. & P.J. Robin, Bioscience Discovery 2 (2): 264, 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from Madikeri, Coorg, Karnataka. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Leucas* sp. (Lamiaceae).

Asterina michelifolia Hosag. & M.C. Riju, J. Threatened Taxa 3(7): 1942, 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from Chennalode, Padinharathara, Wayanad, Kerala, India. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in herbarium of Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Michelia champaca* L. (Magnoliaceae).

Asterina micheligena Hosag. & M.C. Riju, J. Threatened Taxa 3(7): 1944. 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from Chennalode, Padinharathara, Wyanad, Kerala, India. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in herbarium of Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Michelia champaca* L. (Magnoliaceae).

Asterina myristicacearum Hosag. & A. Sabeena, J. Threatened Taxa 3 (3): 2144. 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from TBGT Campus, Palode, Thiruvananthapuram, Kerala, India. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Myristica malabarica* Lam. (Myristicaceae).

Asterina myristicae Hosag. & A. Sabeena, J. Threatened Taxa 3 (10): 2144. 2011. (ASTERINACEAE)

This new species was discovered and described based on collections made from the Arboretum, TBGT Campus, Palode, Thiruvananthapuram, Kerala, India. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Myristica* sp. (Myristicaceae).

Asterostomula syzygii Hosag., A. Sabeena & Jacob-Thomas, Plant Pathology & Quarantine 1(1). 7. 2011.

This new species was discovered and described based on collections made from Peppara Wildlife Sanctuary, Thiruvananthapuram, Kerala. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Syzygium* sp. (Myrtaceae).

Beltramono costei Dubey, Pandey & Monoharachary, J. Mycopathol. Res. 49 (2): 323. 2011. (DEMATIACEAE)

This new species was discovered and described based on collections made from Shodol, Madhya Pradesh, Madhya Pradesh. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in herbarium of department of Bioscience, Rani Durgavati University, Jabalpur, Madhya Pradesh. (HDBJ). The species name is derived from host plant *Custos speciosus* L. (Zingiberaceae).

Biospora aeglei Dubey & Pandey, J. Mycopathol. Res. 49 (2): 357. 2011.

This new species was discovered and described based on collections made from Madhav National Park, Shivpuri, Madhya Pradesh. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in herbarium of department of Bioscience, Rani Durgavati University, Jabalpur, Madhya Pradesh. (HDBJ). The species name is derived from host plant *Aegle marmelos* (L.) Corrêa ex Roxb. (Rutaceae).

Cercosporidium ziziphus Dubey and Pandey, J. Mycol. Plant Pathol. 41 (2): 337. 2011. (MYCOSPHAERELLACEAE)

This new species was discovered and described based on collections made from Manegaw, Jabalpur, Madhya Pradesh. The holotype and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO) and Department of Bio-science, Rani Durgavati University, Jabalpur, Madhya Pradesh respectively. The species is named after the host plant *Zizyphus mauritiana* Lamk.

**Curvularia ocimi** Dubey & Pandey, J. Mycol. Plant Pathol. 41 (2): 335, 2011. (PLEOSPORACEAE)

This new species was discovered and described based on collections made from Bhadhiya kund, Shivpuri, Madhya Pradesh. The holotype and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO) and Department of Bioscience, Rani Durgavati University, Jabalpur, Madhya Pradesh, respectively. The species is named after the host plant *Ocimum sanctum* L.

Dendrophlebia crassispora Dhingra & Priyanka, Mycotaxon, 116: 159, 2011. (CORTICIACEAE)

This new species was discovered and described based on collections made from Bombila, West Kameng district, Arunachal Pradesh on a decaying angiospermous stump. The holotype is deposited in the Department of Botany, Punjabi University, Patiala (PUN). The epithet refers to the thick-walled spores.

Entoloma vittalii Senthil, Kumaresan & S.K. Singh, Mycotaxon, 114: 62, 2010. (ENTOLOMATACEAE)

This new species was discovered and described based on collections made on ground (soil), from Manadukka, Uppangala Forest, Western Ghats, Karnataka, India at an altitude 500m. The holotype is deposited in the Ajrekar Mycological Herbarium (AMH). This species is named in honor of Prof. B.P.R. Vittal of the Centre for Advanced Studies in Botany, University of Madras, India.

Irenopsis loranthicola Hosag. & M.C.Riju, Plant Pathology & Quarantine 1 (2), 122, 2011.

This new species was discovered and described based on collections made from Kollam, Chozhiakode. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant, *Loranthus* sp. (Loranthaceae).

**Hericium bharengense** K. Das, Stalpers & Eberhardt, Cryptog. Mycol. 32 (3): 285, 2011. (HERICIACEAE)

This new species was discovered and described based on collections made from upper Bhareng, West Sikkim at an altitude of about 2537m. The holotype and isotypes are deposited in the herbarium of the Botanical Survey of India, Sikkim Himalayan Regional Centre, Gangtok (BSHC) and Central-bureau voor Schimmekultures, Utrecht, Netherlands (CBS) respectively. The species is named after the locality of its collection.

Irenopsis pterigotae Hosag., A. Sabeena & Jacob Thomas, Bioscience Discovery 2 (1): 119, 2011.

This new species was discovered and described based on collections made from Kottoor, Thiruvananthapuram, Kerala, on leaves of *Pterigota alata* (Roxb.) R.Br. (Sterculiaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host genus.

Lactarius byssaceus K. Das & Verbeken Cryptog. Mycol. 32 (4): 376, 2011. (RUSSULACEAE)

This new species was discovered and described based on collections made from Yuksom, West Sikkim. The holotype and isotypes are deposited in the herbarium of the Botanical Survey of India, Sikkim Himalayan Regional Centre, Gangtok (BSHC) and Ghent University, Department of Biology, Ledeganckstraat, Belgium (GENT) respectively. The species name is derived from whitish cottony margin of pileus.

Lactarius elaioviscidus K. Das & Verbeken, Cryptog. Mycol. 32 (4): 367, 2011. (RUSSULACEAE)

This new species was discovered and described based on collections made from Hilltok, Sikkim. The holotype and isotypes are deposited in the herbarium of the Botanical Survey of India, Sikkim Himalayan Regional Centre, Gangtok (BSHC) and Ghent University, Department of Biology, Ledeganckstraat, Belgium (GENT) respectively. The species name derived from colour and nature of pileus.



Lactarius ermineus K. Das & Verbeken Cryptog. Mycol. 32 (4): 371, 2011. (RUSSULACEAE)

This new species was discovered and described based on collections made from Yuksom, Sikkim. The holotype and isotypes are deposited in the herbarium of the Botanical Survey of India, Sikkim Himalayan Regional Centre, Gangtok (BSHC) and Ghent University, Department of Biology, Ledeganckstraat, Belgium (GENT) respectively. The species name derived from the colour of the pileus.



Meliola abdukkalamii Hosag. & M.C.Riju Plant Pathology & Quarantine 1 (2), 123, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from 16th mile, Padinharathara, Wayanad, Kerala, on leaves of *Aralia* sp. (Araliaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species is named in honour of Dr. A.P.J. Abdul Kalam, former president of India, who devoted his life to science.

Meliola abri Hosag. & M.C.Riju, Plant Pathology & Quarantine 1 (2), 124, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Padinharathara, Wayanad, Kerala on leaves of *Abrus pulchellus* Wall. ex Thwaites (Fabaceae), on leaves of *Aralia* sp. (Araliaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The specific epithet is derived from the host genus.

Meliola aporusae Hosag. & P.J. Robin, Bioscience Discovery 2 (2): 265, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Placherry Ponthanpuzha, Kottayam, Kerala. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Aporosa* sp. (Euphorbiaceae).

Meliola ardisiigena Hosag, A. Sabeena & P.J. Robin, Bioscience Discovery 2 (1): 120, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Pulpally, Wayanad, Kerala, on leaves of *Ardisia* sp. (Myrsinaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host genus.

Meliola canavaliae Hosag. & M.C.Riju, Plant Pathology & Quarantine 1 (2): 125, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from 16th mile, Padinharathara, Wayanad, Kerala, on leaves of *Canavalia* sp. (Fabaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The specific epithet is derived from the host genus.

Meliola clausenigena Hosag. & M.C.Riju, J. Threatened Taxa 3 (3): 1617, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Poochipara, Silent Valley National Park, Palakkad, Kerala, India. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Clausena* sp. (Rutaceae).

Meliola cyperacearum Hosag, V. Dhivaharan & M.C. Riju, J. Sci. Trans. Environ. Techno. 4(4): 165, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Periyakanal, Kukkal Shola Forest, Kodaikanal, Tamil Nadu on leaves of *Cyperus* sp. (Cyperaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Cyperus* sp. (Cyperaceae).

Meliola diospyri-buxifoliae Hosag, A. Sabeena & M.C. Riju, Bioscience Discovery 2 (1): 120, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from TBGRI Campus, Palode, Thiruvananthapuram, Kerala, on leaves of *Diospyros buxifolia* (Blume) Hiern. (Ebenaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host genus.

Meliola dysoxyligena Hosag. & M.C.Riju, Plant Pathology & Quarantine 1 (2): 126, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Chennalode, Wayanad, Padinharathara, Kerala, on leaves of *Dysoxylum* sp. (Meliaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The specific epithet is derived from the host genus.

Meliola goaunilicola Hosag. & P. J. Robin, Bioscience Discovery 2 (2): 264, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Coorg, Karnataka. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Gouania microcarpa* DC. (Rhamnaceae).



Meliola homonoiae Hosag. & A. Sabeena, Bull. Basic & Applied Pl. Bio., 1 (1): 51, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Koruthodu, Kottayam, Kerala, on leaves of *Homonoia riparia* Lour. (Euphorbiaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The specific epithet is derived from the host genus.

Meliola hoveniae Hosag., V. Dhivaharan & M.C. Riju, J. Sci. Trans. Environ. Techno., 4 (4): 166, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Periyakanal, Kukkal Shola Forest, Kodaikanal, Tamil Nadu. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Hovenia acerba* Lindl. (Rhamnaceae).

Meliola kannurensis Hosag., G.R. Archana, K.M. Khaleel & M. Soumya, Bioscience Discovery, 2 (3): 348, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Edat, Payyannur, Kannur, on leaves of *Ficus gibbosa* Bl. (Moraceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from where the type was collected.

Meliola knemae Hosag. & P. J. Robin, Bioscience Discovery 2 (2): 264, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Ponthanpuzha reserve forest, Kottayam, Kerala. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Knema attenuata* (Wallex Hook.f.) Thoms. (Myristicaceae).

Meliola lophopetaligena Hosag. & P. J. Robin, J. Threatened Taxa 3 (5): 1785, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Ponthanpuzha, Kottayam, Kerala, India. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Lophopetalum wightiana* Arn. (Celastraceae).

Meliola luculiae Hosag., V. Dhivaharan & M.C. Riju, J. Sci. Trans. Environ. Techno., 4 (4): 167, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Periyakanal, Kukkal Shola Forest, Kodaikanal, Tamil Nadu. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Luccula grandifolia* Ghose (Rubiaceae).

Meliola premnigena Hosag. & M.C. Riju, Plant Pathology & Quarantine 1 (2): 127, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Wayanad, Padinjarathara, Banasura.

mala, Kerala, on leaves of *Premna glaberima* Wight (Verbenaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The specific epithet is derived from the host genus.

Meliola sterculicola Hosag. & P.J. Robin, J. Threatened Taxa 3 (5): 1782. 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Ponthanpuzha, Placherry, Kottayam, Kerala, India. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Sterculia* sp. (Sterculiaceae).

Meliola strombosiligena Hosag. & M.C.Riju, J. Threatened Taxa 3 (3): 1618. 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Cheriavalakkad, Silent Valley National Park, Palakkad, Kerala, India. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Strombosia* sp. (Olacaceae).

Merismella indiae Dubey & Pandey, J. Mycopath. Res. 48 (2): 397. 2011. (CHAETOTHYRIACEAE)

This new species was discovered and described based on collections made from Bargi forest, Jabalpur, Madhya Pradesh. The specimens are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO) and in Department of Bio-science, Rani Durgavati University, Jabalpur, Madhya Pradesh (HDBJ). This species is named after country of its occurrence.

Mycena saloma Aravind. & Manim., Mycotaxon, 117: 240. 2011. (MYCENACEAE)

This new species was discovered and described based on collections made from Kanniamalai Estate, Munnar, Idukki District, Kerala. The holotype is deposited National Herbarium, Nederland, Leiden (L). The species name is derived from word *saloma* (Sanskrit), meaning hairy.

Passalora barringtoniigena R.Singh, Sham. Kumar & Kamal, Mycotaxon, 117: 138. 2011. (MYCOSPHAERELLACEAE)

This new species was discovered and described based on collections made from Nichlaul Forest, Mahrajanj (U.P.). The holotype is deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in herbarium of Department of Botany, D.D.U. Gorakhpur University, Gorakhpur (GPU). The species name is derived from specific epithet of the host plant *Barringtonia acutangula* (L.) Gaertn. (Lecythidaceae).

Phakopsora blepharidis A.R. Patil, T.R. Kawale and M. S. Patil, Bioinfolet 8 (1): 11. 2011. (PHAKOPSORACEAE)

This new species growing on leaves of *Blepharis molluginifolia* Pers. was discovered and described based on collections made from village Chaloba of Ajara Taluka, Kolhapur district, Maharashtra. The holotype is deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species is named after the generic epithet of the host plant.



Phlebiopsis mussooriensis Priyanka, Dhingra & N. Kaur, Mycotaxon, 115: 255, 2011. (PHANEROCHAETACEAE)

This new corticioid species was discovered and described based on collections made from Mussoorie Company Garden, Uttarakhand, on a decaying log of *Cedrus deodora* (Roxb.) G. Don (Pinaceae). The holotype is deposited in the Department of Botany, Punjabi University, Patiala (PUN). The epithet refers to 'queen of hills,' Mussoorie, in Uttarakhand from where the species was collected.

Pilidiella crousii Rajeshkumar, S.K. Singh & Hepat. Mycotaxon, 115: 158, 2011. (SCHIZOPARMACEAE)

This new species was discovered and described based on collections made from Mahabaleshwar, Western Ghats, Maharashtra, on fallen fruits of *Terminalia chebula* (Combretaceae). The holotype is deposited in the Ajrekar Mycological Herbarium (AMH). This species is named in honour of Prof. dr. Pedro W. Crous, Director, Centraalbureau voor Schimmekultures, Fungal Biodiversity Centre, Utrecht, The Netherlands, for his scientific contribution to this fungal group.

Pseudocercospora kamalii Rajeshkumar, Rahul Sharma & S.K. Singh, Mycotaxon, 116: 232, 2011. (MYCOSPHAERELLACEAE)

This new species was discovered and described based on collections made from Mahabaleshwar, Western Ghats, Maharashtra, on leaves of *Terminalia chebula* Retz. (Combretaceae), at an altitude of 250-500m. The holotype and the isotypes are deposited in the Ajrekar Mycological Herbarium, Pune (AMH). The species named in honour of Prof. Dr. Kamal, Emeritus Professor, Department of Botany, D.D.U. Gorakhpur University for his major contribution to the cercosporoid fungi of India.

Pseudocercospora miliusae R. Singh, Sham. Kumar & Kamal, Mycotaxon, 117: 140, 2011. (MYCOSPHAERELLACEAE)

This new species was discovered and described based on collections made from Vindhyavashini Park, Gorakhpur (U.P.). The holotype is deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in herbarium of Department of Botany, D.D.U. Gorakhpur University, Gorakhpur (GPU). The species name is derived from specific epithet of the host plant *Milusa tomentosa* (Roxb.) J. Sinclair (Annonaceae).

Questieriella ophiorrhizae Hosag., C.J. Thimmaiah & M. Jayashankara, J. Threatened Taxa 3 (12): 2268, 2011. (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from the campus of Bharatiya Vidyabhavan Kodagu Vidyalyaya, Madikeri, Kodagu, Karnataka. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Ophiorrhiza* sp. (Rubiaceae).

Sarcinella caralliae Hosag., C.J. Thimmaiah & M. Jayashankara, J. Threatened Taxa 3 (12): 2269, 2011. (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from Kaimada field, Hoddur, Kodagu, Karnataka. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Carallia brachiata* (Lour.) Merr. (Rhizophoraceae).

Sarcinella loranthacearum Hosag., J. Thomas and D. K. Agarwal, J. Yeast & Fungal Res. 2(5), 85, 2011, (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from Silent Valley National Park, Palakkad. The holotype is deposited herbarium of Indian Agricultural Research Institute, New Delhi (HCIO) and the isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Loranthus* sp. (Loranthaceae).

Sarcinella tamarindi Hosag. & M.C. Riju, Mycosphere 2(2), 158, 2011, (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from 16th mail Padinharathara, Wayanad, Kerala, on living leaves of *Tamarindus indica* L. (Caesalpinaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host genus.

Schiffnerula aristolochiae Hosag., C.J. Thimmaiah & M. Jayashankara, J. Threatened Taxa 3 (12): 2269, 2011, (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from Devara kadu, Hoddur, Kodagu, Karnataka. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Aristolochia tagala* Cham. (Aristolochiaceae).

Schiffnerula azadirachtae Hosag. & A. Sabeena, J. Threatened Taxa 3 (3): 1620, 2011, (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from Kallara, Thiruvananthapuram, Kerala, India. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in Indian Agricultural Research Institute, New Delhi (HCIO). The species name is derived from host plant *Azadirachta indica* A. Juss. (Meliaceae).

Schiffnerula cryptostegiae Hosag. & Jacob-Thomas, Plant Pathology & Quarantine 1 (2), 178, 2011, (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from Vazhachal Forests, Thrissur, Kerala, on leaves of *Cryptostegia* sp. (Asclepiadaceae). The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and the isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The specific epithet is derived from the host genus.

Schiffnerula flacourtiiae Hosag. & Jacob-Thomas, Plant Pathology & Quarantine 1 (2), 181, 2011, (SCHIFFNERULACEAE)

This new species was discovered and described based on collections made from near Peppara dam, Peppara Wildlife Sanctuary, Thiruvananthapuram, Kerala, on leaves of *Flacourtia* sp. (Flacourtiaceae). The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and the isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The specific epithet is derived from the host genus.

Schiffnerula hoddurensis Hosag., C.J. Thimmaiah & M. Jayashankara, J. Threatened Taxa 3 (12): 2270, 2011,

**(SCHIFFNERULACEAE)**

This new species was discovered and described based on collections made from Hoddur, Kodagu, Karnataka. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species is named after its collection locality.

***Schiffnerula lagerstroemiae* Hosag. & Riju, Plant Pathology & Quarantine 1 (2): 188, 2011. (SCHIFFNERULACEAE)**

This new species was discovered and described based on collections made from 16th mile, Padinharathara, Wayanad, Kerala, on leaves of *Lagerstroemia microcarpa* Wight (Lythraceae). The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HIO) and the isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The specific epithet is derived from the host genus.

***Schiffnerula meliosmatis* Hosag., J. Thomas & D. K. Agarwal, J. Yeast & Fungal Res. 2(5): 86, 2011. (SCHIFFNERULACEAE)**

This new species was discovered and described based on collections made from Near Peppara Dam, Peppara Wild life Sanctuary, Thiruvananthapuram. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HIO) and the isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The species name is derived from host plant *Meliosma simplicifolia* (Roxb.) Walp. ssp. *pungens* (Wallich ex Wight and Arn.) Beus. (Sabiaceae).

***Schiffnerula palodensis* Hosag. & M.C. Riju, Bioscience Discovery 2 (2): 272, 2011. (SCHIFFNERULACEAE)**

This new species was discovered and described based on collections made from Chippanchira Polode, Thiruvananthapuram. The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HIO). The species is named after the place from where it has collected.

***Scytalidium zapotii* Dubey & Pandey, Nelumbo 53: 1, 2011. (HYPHOMYCETES)**

This new species was discovered and described based on collections made from Manegaw, Jabalpur district, Madhya Pradesh. The holotype and isotypes are deposited in herbarium of department of Bioscience, Rani Durgavati University, Jabalpur, Madhya Pradesh (HDBJ). The species name is derived from specific epithet of the host plant *Manilkara zapota* L. (Sapotaceae).

***Sporidesmium officinale* Dubey & Pandey, Nelumbo 53: 1, 2011. (HYPHOMYCETES)**

This new species was discovered and described based on collections made from Jabalpur district, Madhya Pradesh. The holotype is deposited in herbarium of department of Bioscience, Rani Durgavati University, Jabalpur, Madhya Pradesh (HDBJ). The species name is derived from specific epithet of the host plant *Jasminum officinale* L. (Apocynaceae).

Asteridiella scolopiae var. **indica** Hosag. & M.C. Riju, Plant Pathology & Quarantine 1 (2): 121, 2011.

This new variety was discovered and described based on collections made from Pathanamthitta, Sabarigiri project area, on leaves of *Scolopia* sp. (Flacourtiaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in Indian Agricultural Research Institute, New Delhi (HCIO). The variety is named after the country, India.

Asterina solani Mc Alpine var. **kodaikanalensis** Hosag., V Dhivaharan & M.C. Riju, J. Sci Trans. Environ. Techno, 4(4): 165, 2011.

This new variety was discovered and described based on collections made from Periyakanal, Kukkal Shola Forest, Kodaikanal, Tamil Nadu on leaves of *Solanum viburnum* (Solanaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The variety is named after the place from where the type was collected.

Meliola daviesii Hansf. var. **kodaikanalensis** Hosag., V Dhivaharan & M.C. Riju, J. Sci Trans. Environ. Techno, 4(4): 166, 2011. (MELIOLACEAE)

This new variety was discovered and described based on collections made from Periyakanal, Kukkal Shola Forest, Kodaikanal, Tamil Nadu on leaves of *Solanum viburnum* (Solanaceae). The holotype is deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT) and isotypes are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The variety is named after the place from where the type was collected.

Meliola gouaniae Hansf. var. **keralica** Hosag. & P.J. Robin, J. Threatened Taxa 3 (5): 1785, 2011. (MELIOLACEAE)

This new species was discovered and described based on collections made from Ponthanpuzha, Kottayam, Kerala, India. The holotype is deposited in Indian Agricultural Research Institute, New Delhi (HCIO) and isotypes are deposited in Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). The variety is named after the state of its occurrence.

Uredo leonotidis P. Hennings var. **indica** A.R. Patil, T.R. Kawale & M. S. Patil, Bioinfolet 8(1): 12, 2011. (PUCCINIALES)

This new variety, growing on the leaves of *Leonotis nepetifolia* (L.) R. Br. (Lamiaceae) was discovered and described based on collections made from village Sinnar, Nashik district, Maharashtra. The holotype is deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HCIO). The variety is named after the country of its occurrence.





GENUS

Merismella Syd. (CHAETOTHYRIACEAE)

This genus, earlier known from Africa, Panama and Uganda has been reported for the first time from India based on collections made from Bargi forest, Jabalpur, Madhya Pradesh. The specimens are deposited in the herbarium of Indian Agricultural Research Institute, New Delhi (HIO) and the department of Bioscience, Rani Durgavati University, Jabalpur, Madhya Pradesh. This specie was published by Rashmi Dubey and A.K. Pandey in J. Mycopathol. Res. 48 (2): 397. 2011.

SPECIES

Asterostomula loranthei Theiss. (MELIOLACEAE)

This species, was reported for the first time from India based on collections made from India, Kerala, Thiruvananthapuram, on leaves of *Loranthus* sp. (Loranthaceae). The specimens are deposited in the herbarium Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). It has been published by V.B. Hosagoudar, Sabeena A and Jacob-Thomas, Plant Pathology & Quarantine 1 (1), 7. 2011.

Catenosynnema michelliae Kodsueb et al.

This anamorphic fungus species, earlier known to occur Cuba and Thailand, respectively was reported for the first time from India based from Amboli, Maharashtra on dead and decaying twigs. The specimens are deposited in the Department of Botany, Goa University, Goa (GUBH). It has been published by J. Pratibha, D.J. Bhat & S. Raghukumar, Mycotaxon, 117: 276. 2011.

Cheiromyceopsis echinulata Mercado & J. Mena

This species, earlier known to occur Cuba and Thailand, respectively was reported for the first time from India based from Kathlekan, Uttar Kannada, Kamataka. The specimens are deposited in the Department of Botany, Goa University, Goa (GUBH). It has been published by J. Pratibha, D.J. Bhat & S. Raghukumar, Mycotaxon, 117: 276. 2011.

Flabellospora amphibia (Price & Talbot) Descals (PEZIZOMYCOTINA)

This species, earlier known from Australia, has been reported for the first time from India based on collections made from foam samples collected from Tapi and Panzara rivers, Maharashtra. The specimens are deposited in Indian Agricultural Research Institute, New Delhi (HIO). This specie was published by C.M. Pawara, S.Y. Patil and B.D. Borse in Bioinfolet 8 (1): 18. 2011.

Gliocephalotrichum simplex (J.A. Mey.) B.J. Wiley & E.G. Simmons. (NECTRIACEAE)

This species, earlier known to occur in Singapore, was reported for the first time from India based on collections from Mahabaleshwar, Maharashtra, on degraded fruits of *Terminalia chebula* Retz. (Combretaceae). The specimens are deposited in the Ajrekar Mycological Herbarium (AMH). It has been published by Sanjay K. Singh, Lal Sahab Yadav, Paras N. Singh, Rahul Sharma & Kunhiraman C. Rajeshkumar Mycotaxon, 114(4): 163-169. 2010.

***Meliola garugae* Stev. & Rold., (MELIOLACEAE)**

This species, earlier known from Philippines, was reported for the first time from India based on collections made from Ponthanpuzha, Kottayam, Kerala, India. The specimens are deposited in the herbarium Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala (TBGT). It has been published by V.B. Hosagoudar & P.J. Robin, J. Threatened Taxa 3 (5): 1785, 2011.

***Puccinia praetermissa* J. Parm (PUCCINIACEAE)**

This species, earlier known from Arizona, USA, has been reported for the first time from India based on collections made from Pune, Maharashtra. The specimens are deposited in Indian Agricultural Research Institute, New Delhi (HIO). This species was published by A.R. Patil, T.R. Kawale and M. S. Patil in Bioinfolet 8 (1): 12, 2011.

***Puccinia varioides* I. Jorstad (PUCCINIACEAE)**

This species, earlier known from Brazil and Ecuador, has been reported for the first time from India based on collections made from Pune, Maharashtra. The specimens are deposited in Indian Agricultural Research Institute, New Delhi (HIO). This species was published by A.R. Patil, T.R. Kawale and M. S. Patil in Bioinfolet 8 (1): 11, 2011.

***Russula periglypta* Berk. & Broome, (RUSSULACEAE)**

This species, earlier known, to occur from, Sri Lanka, Vietnam, was reported for the first time from India based on collections made from Botanical Garden, Calicut University Campus, Malappuram District, Kerala. The specimens are deposited in the herbarium of Department of Botany, University of Calicut (CALI). It has been published by P. Manimohan & K. P. Deepna Latha, Mycotaxon, 116: 126, 2011.

***Russula purpureonigra* Petch, (RUSSULACEAE)**

This species, earlier known, to occur from, Sri Lanka, was reported for the first time from India based on collections made from Botanical Garden, Calicut University Campus, Malappuram District, Kerala. The specimens are deposited in the herbarium of Department of Botany, University of Calicut (CALI). It has been published by P. Manimohan & K. P. Deepna Latha, Mycotaxon, 116: 128, 2011.



ALGAE

Courtesy : M. Palanisami

ALGAE

Algae are large and diverse group of simple, typically autotrophic organisms from unicellular to multicellular forms.

Though algae are becoming more and more open to exploitation worldwide, knowledge on algae is probably very elementary in India. The Indian algae account for about 18 per cent of the total species of the world.

In the present state of our knowledge India has about 7,192 species of algae. Many more are yet to be identified and described.

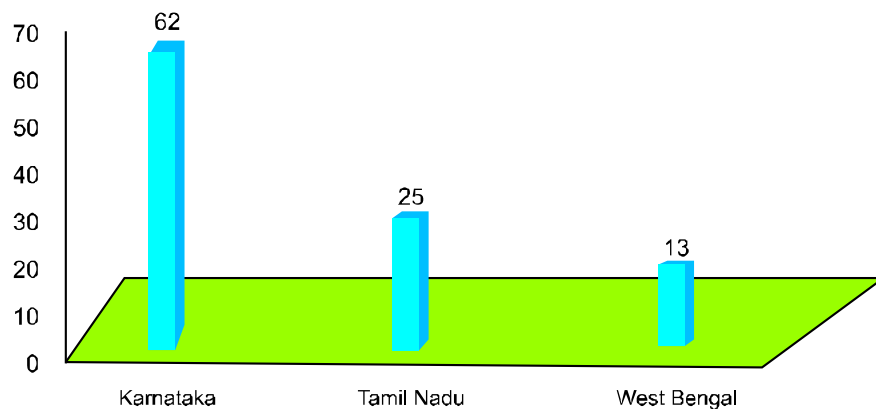
The collated information presented here includes

07 new species

(05 from Karnataka and 02 from Tamil Nadu)

And

01 species as new distributional records.



PERCENTAGE OF ALGAE DISCOVERED FROM INDIAN STATES

Gomphonema gandhil Karthick & Kociolek, Nova Hedwigia Vol. 93 (1-2): 219.f.2-19. 2011.
(BACILLARIOPHYCEAE)

This new species was discovered and described based on collections made from a stream at Kammani, a tributary Bedthi River at an altitude of 109 m, Uttara Kannada District, Karnataka, India. The holotype is deposited in the herbarium of Centre for Ecological Science, Indian Institute of Science, Bangalore (CESH) and isotypes are deposited in the Natural History Museum, London, UK (BM) and Diatom Collection, University of Colorado, Boulder, USA. The species is named in honor of H.P. Gandhi, for his outstanding contributions to diatom research in India.

Gomphonema difformum Karthick & Kociolek, Nova Hedwigia Vol. 93 (1-2):223.f. 20-40. 2011.
(BACILLARIOPHYCEAE)

This new species was discovered and described based on collections made from a stream at Andhalli a tributary Bedthi River at an altitude 483 m, Uttara Kannada district, Karnataka, India. The holotype is deposited in the herbarium of Centre for Ecological Science Indian Institute of Science, Bangalore (CESH) and isotypes are deposited in the Natural History Museum, London, UK (BM) and Diatom Collection, University of Colorado, Boulder, USA.

Gomphonema diminutum Karthick & Kociolek, Nova Hedwigia Vol. 93 (1-2):227.f. 41-51. 2011.
(BACILLARIOPHYCEAE)

This new species was discovered and described based on collections made from a stream at Kammani a tributary Bedthi River at an altitude 109 m, Uttara Kannada district, Karnataka, India. The holotype is deposited in the herbarium of Centre for Ecological Science, Indian Institute of Science, Bangalore (CESH) and isotypes are deposited in the Natural History Museum, London, UK (BM) and Diatom Collection, University of Colorado, Boulder, USA. The species epithet indicated its small size.

Pleurosira indica Karthick & Kociolek, Phytotaxa 22: 27. 2011. (THALASSIOSIRACEAE)

This new species was discovered and described based on collections made from a floating aquatic plant in Kodaikanal Lake at an altitude 2090 m, Dindigul District, Tamil Nadu. The holotype is deposited in the herbarium of Centre for Ecological Science, Indian Institute of Science, Bangalore (CESH) and isotypes are deposited in the Natural History Museum, London, UK (BM). The species is named after the name of the country of its occurrence.

Spicatricibra kodaikanaliana Karthick & Kociolek, Phytotaxa 22: 29. 2011. (THALASSIOSIRACEAE)

This new species was discovered and described based on collections made from a floating aquatic plant in Kodaikanal Lake at an altitude 2090 m, Dindigul District, Tamil Nadu. The holotype is deposited in the herbarium of Centre for Ecological Science, Indian Institute of Science, Bangalore (CESH) and isotypes are deposited in the Natural History Museum, London, UK (BM). The species is named after the type locality, Kodaikanal.

Urosolenia curvata Karthick & Kociolek, Phytotaxa 22: 32. 2011. (RHIZOSOLENIACEAE)

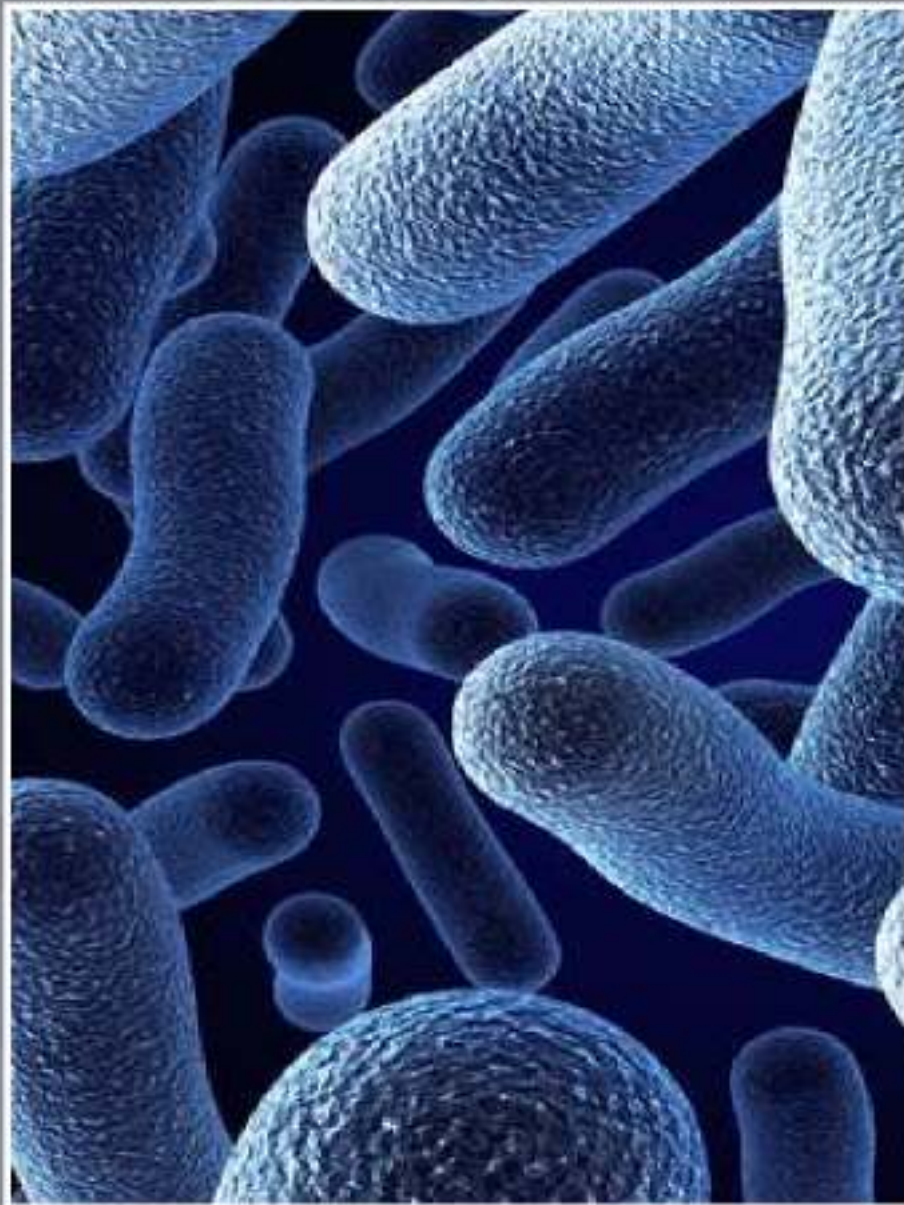
This new species was discovered and described based on collections made from Hirebhaskar Dam on Sharavathi River at an altitude 552 m, Shimoga District, Karnataka, India. The holotype is deposited in the herbarium of Centre for Ecological Science, Indian Institute of Science, Bangalore (CESH) and isotypes are deposited in the Natural History Museum, London, UK (BM). The species name is derived from the curved process of the valve terminus.

***Urosolenia extensa*** Karthick & Kociolek, Phytotaxa 22: 34, 2011. (RHIZOLENIAACEAE)

This new species was discovered and described based on collections made from Hirebhaskar on Dam Sharavathi River at an altitude 552 m, Shimoga District, Karnataka, India. The holotype is deposited in the herbarium of Centre for Ecological Science, Indian Institute of Science, Bangalore (CESH) and isotypes are deposited in the Natural History Museum, London, UK (BM). The species name is derived from the elongated process of the valve.

NEW DISTRIBUTIONAL RECORD***Dispora crucigenoides*** Printz (VOLVOCALES)

This species of algae, earlier known from Australia, Pakistan and Rumania reported for the first time from India based on collections made from Burdwan district of West Bengal. The specimens are deposited in the Phycology section, Botany Department, Burdwan University. It has been published by Debajyoti Das, Golam Mustafa and Jai Prakash Keshri in J. Econ. Taxon. Bot. 35(1): 219, 2011.



MICROBES

Courtesy : Internet

MICROBES

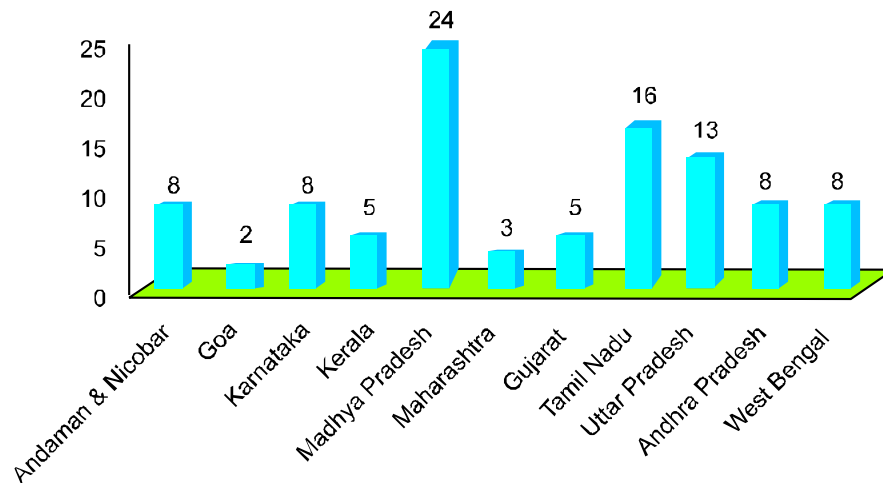
Out of the estimated 50,000 -3,000,000 species of bacteria and archaea, only about 8050 species have been described globally. About 966 species have been isolated from India. It is necessary to understand the diversity of bacteria and archaea present in a great variety of Indian environments, and understand their role in nature.

In the present state of our knowledge, Indian microbes represent about 11 % of the total species of the world.

The collated information presented here includes

07 new genera

31 new species of microbes from India.



PERCENTAGE OF MICROBES DISCOVERED FROM INDIAN STATES

Calidifontibacter Arunachalam Ruckmani, Ishwinder Kaur, Peter Schumann, Hans- Peter Klenk and Shanmugam Mayilraj, Int. J. Syst. Evol. Microbiol. 61: 2419-2424, 2011, (ACTINOBACTERIA)

A Gram-positive, non-motile, short rod shaped, creamish white to yellow coloured actinobacterial strain, designated PC IW02^T, was isolated from Western Ghats, India. Analysis of the 16S rRNA gene sequence along with the morphological, physiological and chemotaxonomic characteristics of strain PC IW02^T differed from those of members of closely related genus *Demetria*. Based on the phylogenetic analysis, with the genus *Demetria* as closest clade the strain PC IW02^T was proposed as a type of a new genus under family Dermacoccaceae. The type strain is PC IW02^T (=MTCC 8338^T=DSM 22967^T=JCM 16038^T).

Cecembia P. Anil Kumar, T. N. R. Srinivas, S. Madhu, R. Sravan, Shashi Singh, S. W. A. Naqvi, S. Mayilraj, and S. Shivaji, Int. J. Syst. Evol. Microbiol. 61, 2011, (CYCLOBACTERIACEAE).

A Gram-negative, rod shaped, non-motile bacterium, designated strain LW9^T, was isolated from a water sample collected from Lonar Lake of Buldhana district, Maharashtra, India. Analysis of the 16S rRNA gene sequence along with the morphological, physiological and chemotaxonomic characteristics of strain PC IW02^T differed from those of members of closely related genera *Indibacter* and *Aquiflexum*. Phenotypic and phylogenetic characteristics suggested that strain LW9^T is a representative of a new genus. The type strain is LW9^T (=CCUG 58316^T=KCTC 22772^T).

Chryseomicrobium Pankaj Kumar Arora, Archana Chauhan, Bhawana Pant, Suresh Korpole, Shanmugam Mayilraj and Rakesh Kumar Jain, Int. J. Syst. Evol. Microbiol. 61:1859-1864, 2011, (PLANOCOCCACEAE)

A Gram-stain-positive, rod-shaped, yellow, non-motile, non-spore-forming, strictly aerobic bacterial strain, designated MW 10^T, was isolated from seawater of the Bay of Bengal, India. Analysis of the 16S rRNA gene sequence along with the morphological, physiological and chemotaxonomic characteristics of strain MW 10^T differed from those of members of closely related genera *Poenisporosarcina*, *Planococcus*, *Sporosarcina* and *Planomicrobium*. Based on the phylogenetic analysis, the strain MW 10^T was proposed as type of the new genus. The type strain is MW 10^T (=MTCC 10098^T=JCM 16573^T).

Imtechella Vikram Surendra, Bhawana Pant, Suresh Korpole, T. N. R. Srinivas, and Pinnaka Anil Kumar, Int. J. Syst. Evol. Microbiol. 61, 2011, (FLAVOBACTERIACEAE)

A novel Gram-negative, rod-shaped, non-motile, non-sporulating bacterium, designated strain KI^T, was isolated from estuarine water sample collected from Kochi, Kerala, India. Analysis of the 16S rRNA gene sequence along with the morphological, physiological and chemotaxonomic characteristics of strain KI^T differed from those of members of closely related genera *Zhouia*, *Caenonia* and *Capnocytophaga*. Phenotypic and phylogenetic, chemotaxonomic characteristics suggested that strain strain KI^T represented of a new genus. The type strain of is KI^T (= MTCC 11055T = JCM 17677^T).

Lutibaculum Pinnaka Anil Kumar, T. N. R. Srinivas, Poorna Manasa, S. Madhu, & S. Shivaji, Int. J. Syst. Evol. Microbiol. 61:10, 2011, (PROTEOBACTERIA)

A Gram-negative, oval to rod-shaped, motile bacterium, strain AMV1^T, was isolated from a soil sample collected from mud volcano, Baratang Island, Andamans, India. Analysis of the 16S rRNA gene sequence and the morphological, physiological and chemotaxonomic characteristics of strain PC IW02^T differed from those of members of closely related genera *Amorphus*, *Rhodobium* and *Affifella*. Phenotypic and phylogenetic characteristics suggested that strain AMV1^T represented a new genus. The type strain is AMV1^T (= KCTC 22669^T = NBRC 105799^T).



= CCUG 58046^T).

Phaeovibrio K. V. N. S. Lakshmi, Ch. Sasikala, G. V. Ashok Kumar, R. Chandrasekaran, & Ch. V. Ramana, J. Syst. Evol. Microbiol. 61: 828-833, 2011. (RHODOSPIRILLACEAE)

Two strains (JA480^T and JA481) of phototrophic alphaproteobacteria Gram-negative, vibrioid, non-flagellate, was isolated from sediment samples collected from brackish water near Nagapattinam, India. Analysis of the 16S rRNA gene sequence along with the morphological, physiological and chemotaxonomic characteristics of strain JA480^T differed from those of members of closely related genera *Rhodospirillum*, *Rhodocista*, *Phaespillum*, *Rhodovibrio* and *Rhodospira*. Distinct morphological, physiological and genotypic differences from previously described taxa suggest that, the new strain represented a new genus. The type strain of is JA480^T (=KCTC 5825^T = NBRC 106163^T = DSM 23193^T).

Sandaracinus Kathrin I Mohr, Ronald O Garcia, Klaus Gerth, Herbert Irschik, & Rolf Müller, Int. J. Syst. Evol. Microbiol. 61: 2011. (SANDARACINACEAE)

A new Gram-negative rod vegetative cells, swarming colony, fruiting body-like, bacterium strain NOSO-4T. The new gram-negative rod vegetative cells, Swarming colony, fruiting body-like, bacterium strain NOSO-4T. Isolated from a soil sample Containing plant residues from Lucknow, Uttar Pradesh, India. The strain is mesophilic, strictly aerobic and chemoheterotrophic. Based on 16S rRNA gene sequence the strain is designated as a new genus. The type is NOSO-4T (DSM53668T = NCCB100362T)

NEW SPECIES

Agrococcus carbonis Soniya Dhanjal, Ishwinder Kaur, Suresh Korpole, Peter Schumann, Swaranjit Singh Cameotra, Rüdiger Pukall, Hans-Peter Klenk, & Shanmugam Mayilraj, Int. J. Syst. Evol. Microbiol. 61: 2011. (ACTINOBACTERIA)

A Gram-positive, rod-shaped, yellow-pigmented, non-motile and non-spore-forming cocci actinobacterial strain, designated G4^T, isolated from a coal mine. This organism possessed a type B peptidoglycan with diaminobutyric acid as diagnostic diamino acid. The 16S rRNA gene sequence analysis indicated that, it belongs to the genus *Agrococcus*. The closest related species are *Agrococcus bollii*, *Agrococcus citreus* and *Agrococcus jenensis*. Based on these phenotypic characteristics and on phylogenetic inference, strain G4^T should be classified as the type strain of a novel species of the genus *Agrococcus*. The type strain is G4^T (=MTCC 10213^T = DSM 22965^T).

Actinomadura sediminis Jie He, Ying Xu, Malay Kumar Sahu, Xin-Peng Tian, Guo-Xing Nie, Qiong Xie, Si Zhang, Kannan Sivakumar, & Wen-Jun Li, Int. J. Syst. Evol. Microbiol. 61: 2011. (ACTINOBACTERIA)

A Gram-positive, aerobic actinobacterium, strain YIM M 10931^T, isolated from a mangrove sediment sample collected in Dugong Creek, Little Andaman, India. The strain produced in a branched substrate mycelium and aerial hyphae, which differentiated into short, hooked or spiral spore chains. The 16S rRNA gene sequence analysis indicated that it belongs to the *Actinomadura*. The closest related species are *Actinomadura cremea*, *Actinomadura rifamycinii* and *Actinomadura apis*. Based on the phenotypic and genotypic characteristics strain YIM M 10931^T represents a novel species within the genus *Actinomadura*. The type of the strain is YIM M 10931^T (=CCTCC AA 2010009^T = DSM 45500^T).

Blastochloris guilmargensis V. Venkata Ramana, Shivali Kapoor, E. Shobha, E. V. V. Ramprasad, Ch. Sasikala, & Ch. V. Ramana. Int. J. Syst. Evol. Microbiol. 61: 1811-1816, 2011. (PROTEOBACTERIA)

A Gram-negative, motile, bacteriochlorophyll b-containing purple non-sulfur bacterium, strain JA248T, was isolated from phototrophic enrichments of a yellow-green epilithic biofilm sample collected from Gulmarg, India. Comparative analysis of 16S rRNA gene sequence analysis, multilocus sequence analysis and chemotaxonomic evidences concluded that the strain JA248T represents a novel species within the genus *Blastochloris*. The type strain is JA248T (=JCM 14795T =DSM 19786T).

Brachybacterium saurashtrense Iti Gontia, Kumari Kavita, Michael Schmid, Anton Hartmann, & Bhavanath. Int. J. Syst. Evol. Microbiol. 61:2799-2804, 2011. (ACTINOBACTERIA).

A Gram-positive-staining, aerobic, non-motile, coccoid shaped, halotolerant bacterium strain JG 06T was isolated from the roots of *Salicornia brachiata*, an extreme halophyte. Phylogenetic analysis based on 16S rRNA gene sequence and phenotypic properties including chemotaxonomic markers affiliated the strain JG 06T to the genus *Brachybacterium*. Physiological, biochemical and phylogenetic analyses, clearly shows that the strain JG 06T is different in biochemical and chemotaxonomic characteristics from all the known members of the genus *Brachybacterium*. The type strain is JG 06T=DSM 23186T=IMCC 252T).

Caenispirillum salinarum Ritika Chanan, Suresh Korpole, & Anil Kumar Pinnaka, Int. J. Syst. Evol. Microbiol. 61(9): 2011. (PROTEOBACTERIA)

A Gram-negative, vibrio-shaped, motile bacterium, designated strain AK4T, was isolated from a sediment sample collected from a solar slattem of Kakinada, Andhra Pradesh, India. Phylogenetic analysis based on 16S rRNA gene sequences shows that the closely related species *Caenispirillum bisonense*. Based on the phenotypic characteristics and phylogenetic inference, strain AK4T is proposed as a new species with the type strain is AK4T (=MTCC 10963T =JCM 17360T)

Calidifontibacter indicus Arunachalam Ruckmani, Ishwinder Kaur, Peter Schumann, Hans-Peter Klenk, & Shanmugam Mayilraj. Int. J. Syst. Evol. Microbiol. 61: 2419-2424, 2011. (DERMACOCCACEAE)

A non-motile, Gram-positive, short rod shaped, creamish white to yellow coloured actinobacterial strain, designated PC IW02T, was isolated from a hot spring during the course of a study on the bacterial diversity in Western Ghats, India. On the basis of phenotypic characteristics, including chemotaxonomic data, and 16S rRNA gene sequence similarities, the strain represents a new species in the genus of *Calidifontibacter*. The type strain is PC IW02T (=MTCC 8338T=DSM 22967T=JCM 16038T).

Cecembia lonarensis P. Anil Kumar, T. N. R. Srinivas, S. Madhu, R. Sravan, Shashi Singh, S. W. A. Naqvi, S. Mayilraj, & S. Shivaji. Int. J. Syst. Evol. Microbiol. 61(11): 2011. (CYCLOBACTERIACEAE).

A Gram-negative, rod shaped, non-motile bacterium, designated strain LW9T, was isolated from a water sample collected from Lonar Lake of Buldhana district, Maharashtra, India. Colonies and broth cultures were reddish-orange due to the presence of carotenoid pigments. The 16S rRNA gene sequence analysis indicated that, it belongs to a new species of the *Bacterioides*. The closest related species are *Indibacter alkaliphilus* and *Aquiflexum balticum*. Based on these phenotypic characteristics and on phylogenetic inference, strain LW9T is proposed as novel species, with the type strain LW9T (= CCUG 58316T = KCTC 22772T).

Chryseomicrobium intechense Pankaj Kumar Arora, Archana Chauhan, Bhawana Pant, Suresh Korpole, Shanmugam Mayilraj, & Rakesh Kumar Jain. Int. J. Syst. Evol. Microbiol. 61: 1859-1864, 2011. (PLANOCOCCACEAE)



A Gram-stain-positive, rod-shaped, yellow, non-motile, non-spore-forming, strictly aerobic bacterial strain, designated as MW 10^T, was isolated from seawater of the Bay of Bengal, India. Analysis of the 16S rRNA gene sequence revealed that it belongs to this new genus. On the basis of its morphological, physiological and chemotaxonomic characteristics strain MW 10^T is designed to a new species, with the type strain MW 10^T (=MTCC 10098^T =JCM 16573^T).

Flavobacterium ummariense Pushp Lata, Devi Lal, & Rup Lal. Int. J. Syst. Evol. Microbiol. 61: 2011, (FLAVOBACTERIACEAE)

A Gram-staining-negative, strictly aerobic, yellow-coloured bacterial strain designated DS-12^T, was isolated from hexachlorocyclohexane (HCH) contaminated soil in Lucknow, Uttar Pradesh, India. The 16S rRNA gene sequence analysis indicated that it belongs to a new genus of Bacteroides. The closest related species are *Flavobacterium ceti* CCUG 52969^T. Based on these phenotypic characteristics and on phylogenetic inference, strain DS-12^T is proposed as novel species with the type strain is DS-12^T (=CCM7847^T =MTCC 10766^T).

Fulvivirga imtechensis Nupur, Shalley Sharma, Pradip Kumar Singh, Suresh Korpole & Anil Kumar Pinnaka., Int. J. Syst. Evol. Microbiol. 61(11): 2011, (Flammovirgaceae)

A novel, Gram-negative, rod-shaped, obligate aerobic, yellow coloured non-motile bacterium, designated as strain AK7^T, was isolated from water sample collected from sea shore of Visakhapatnam, Andhra Pradesh, India. Phylogenetic analysis based on 16S rRNA gene sequence analysis and morphological, biochemical, physiological, chemotaxonomic analysis revealed that the strain AK7^T belongs to this Bacteroides. The strain designated to a novel species with the type strain is AK7^T (=MTCC 11053^T =JCM 17390^T).

Georgenia satyanarayanai A. Srinivas, K. Rahul, Ch. Sasikala, Y. Subash, E. V. V. Ramprasad & Ch. V. Ramana., Int. J. Syst. Evol. Microbiol. 61: 2011, (ACTINOBACTERIA)

A novel, Gram-negative, oxidase negative, starch hydrolyzing, actinobacterium strain JC82^T was isolated from soda lake, Lonar, India. Phylogenetic analysis based on 16S rRNA gene sequence and biochemical, physiological analysis revealed that the strain JC82^T belongs to the genus *Georgenia*. The most closely related species is *Georgenia muralis* 1A-C^T. The results above analysis clearly shows phenotypic differentiation of strain JC82^T from all other members of the genus, hence representing a novel species, with the type strain JC82^T (=KCTC 19802^T =NBRC 107612^T).

Ignatzschineria indica Arvind Kumar Gupta, Mahesh Shantappa Dharme, Ashraf Yusuf Rangrez, Pankaj Verma, Hemant V. Ghate, Manfred Rohde, Milind Shivaji Patole & Yogesh Shreepad Shouche., Int. J. Syst. Evol. Microbiol. 61: 1360-1369, 2011, (PROTEOBACTERIA).

A gram-negative-stain, aerobic, non-motile, rod-shaped bacteria, designated as strain FFA1^T was isolated from the gastrointestinal tract of adult flesh flies. The 16S rRNA gene sequence analysis indicated that it belongs to this new genus of the class Gammaproteobacteria. Phylogenetic analysis of 16S rRNA gene sequence data in combination with chemotaxonomic, biochemical and electron microscopic data, demonstrated that strains FFA1^T represented a novel species with the type strain FFA1^T =DSM 22309^T =KCTC 22643^T =NCIM 5325^T.

Ignatzschineria ureiclastica Arvind Kumar Gupta, Mahesh Shantappa Dharme, Ashraf Yusuf Rangrez, Pankaj Verma, Hemant V. Ghate, Manfred Rohde, Milind Shivaji Patole & Yogesh Shreepad Shouche., Int. J. Syst. Evol. Microbiol. June 2011, 61:1360-1369, (PROTEOBACTERIA).

A gram-negative-stain, aerobic, non-motile, rod-shaped bacteria, designated as strain FFA3^T was isolated from the gastrointestinal tract of adult flesh flies. Phylogenetic analysis of 16S rRNA gene sequence data in combination with



chemotaxonomic, biochemical and electron microscopic data, demonstrated that strains FFA3^T represented a novel species with the type strain FFA3^T=DSM 22310^T=KCTC 22644^T=NCIM 5326^T).

Imtechella halotolerans Vikram Surendra, Bhawana Pant, Suresh Korpole, T. N. R. Srinivas & Pinnaka Anil Kumar, Int. J. Syst. Evol. Microbiol. 61, 2011, (FLAVOBACTERIACEAE)

A novel Gram-negative, rod-shaped, non-motile, non-sporulating bacterium, designated as strain KI^T, was isolated from estuarine water sample collected from Kochi, Kerala, India. Colonies on marine agar were circular, 2–2.5 mm in diameter, shiny, yellow, translucent and convex with entire margins. The 16S rRNA gene sequence analysis indicated that it belongs to the genus *Imtechella*. The closest related species are *Zhouia amylolytica* and *Aquiflexum balticum*. Based on these phenotypic characteristics and on phylogenetic inference, strain KI^T was proposed as novel species with the type strain of KI^T (=MTCC 11055^T =JCM 17677^T).

Lutibaculum baratangense Pinnaka Anil Kumar, T. N. R. Srinivas, Poorna Manasa, S. Madhu & S. Shivaji, Int. J. Syst. Evol. Microbiol. 61(10): 2011, (PROTEOBACTERIA)

A Gram-negative, oval to rod shaped, motile bacterium, designated as strain AMVI^T, was isolated from a soil sample collected from a mud volcano, Baratang Island, Andamans, India. Analysis of the 16S rRNA gene sequence along with the morphological, physiological and chemotaxonomic characteristics suggests that strain PC IW02^T belongs to this new genus. Phenotypic and phylogenetic characteristics suggested that strain AMVI^T is a representative of a new species with the type strain AMVI^T (=KCTC 22669^T =NBRC 105799^T = CCUG 58046^T).

Microbacterium arthrosphaerae P. Kämpfer, P. D. Rekha, P. Schumann, A. B. Arun, Chiu-Chung Young, Wen-Ming Chen & K. R. Sridhar., Int. J. Syst. Evol. Microbiol. 61: 1334–1337, 2011, (ACTINOBACTERIA)

A Gram-positive, rod-shaped bacterium, designated as strain CC-VM-Y^T, was isolated from the faeces of the pill millipede *Arthrosphaera magna* Attems from India. Based on 16S rRNA gene sequence similarities, physiological and biochemical tests as well as DNA–DNA hybridizations strain CC-VM-Y^T was determined a novel species of the genus with the type strain CC-VM-Y^T (=DSM 22421^T =CCM 7681^T).

Microbacterium amylolyticum Shailly Anand, Kiran Bala, Anjali Saxena, Peter Schumann & Rup Lal, Int. J. Syst. Evol. Microbiol. 61(10): 2011, (ACTINOBACTERIA)

A Gram-positive, heterotrophic, aerobic, non-motile, non-endospore forming, rod-shaped and yellow colored bacterium designated as strain N5^T, was isolated from a soil sample collected from the industrial waste site in Noida at the outskirts of Delhi, India. Phylogenetic analysis, DNA–DNA hybridization, chemotaxonomic and phenotypic analysis support the conclusion that strain N5^T represented a novel species with the type strain N5^T (=DSM 24221^T =CCM 7881^T).

Microbacterium immunditarum Srinivasan Krishnamurthi, Amit Bhattacharya, Peter Schumann, Syed G. Dastager, Shu-Kun Tang, Wen-Jun Li & Tapan Chakrabarti, Int. J. Syst. Evol. Microbiol. 61: 2011, (ACTINOBACTERIA)

A Gram-positive, non-endospore forming bacterium designated as strain SK 18^T, was isolated from surface soil of a landfill by dilution plating on tryptic soy broth agar (TSBA). FAME analysis and partial 16S rRNA gene sequencing indicated that it belongs to genus. Further strain SK 18^T showed a number of differences in phenotypic as well as chemical characteristics when compared with its closest species *Microbacterium ulmi*, hence treated as a new species with the type strain SK 18^T (=MTCC 7185^T =JCM 14034^T).

Micrococcus lactis Chittipurna, Pradip K. Singh, Dipti Verma, Anil Kumar Pinnaka, Shanmugam Mayilraj & Suresh



Korpole, Int. J. Syst. Evol. Microbiol. 61:2832-2836, 2011. (ACTINOBACTERIA)

A Gram-positive, yellow-pigmented, actinobacterial strain, DW152^T, was isolated from a dairy industry effluent treatment plant. Phylogenetic analysis based on 16S rRNA gene sequence and phenotypic properties including chemotaxonomic markers affiliated this strain to the genus *Micrococcus* with the most closely related species being *Micrococcus terreus* NBRC 104258^T. Further, strain DW152^T differed in biochemical and chemotaxonomic characteristics from *M. terreus* and other species of the genus. Based on the above differences, strain DW152^T is designated to a new species with the type strain DW152^T (=MTCC10523^T=DSM 23694^T).

Phaeospirillum oryzae K. V. N. S. Lakshmi, Ch. Sasikala, S. Takaichi & Ch. V. Ramana, Int. J. Syst. Evol. Microbiol. 61: 1656-1661, 2011. (RHODOSPIRILLACEAE)

Two Gram-negative, spiral shaped, spheroplast-forming, anaerobic, Gram-negative, motile purple non-sulfur bacteria, designated strains JA317^T and JA559, were isolated from rhizosphere soils of paddy. The strains have Bacteriochlorophyll *a* and carotenoids, rhodopin, lycopene and rhodopin glucoside as photosynthetic pigments. The 16S rRNA gene sequence analysis indicated that it belongs a new genus. The closest related species are *Phaeospirillum chandramohanii*, *P. molschianum* and *P. fulvum*. Based on these phenotypic characteristics and on phylogenetic inference, strain JA317^T represents a novel species of the genus *Phaeospirillum*, with the type strain JA317^T (=NBRC 104938^T=KCTC 5704^T).

Phaeovibrio sulfidophilus K. V. N. S. Lakshmi, Ch. Sasikala, G. V. Ashok Kumar, R. Chandrasekaran & Ch. V. Ramana, Int. J. Syst. Evol. Microbiol. 61: 828-833, 2011. (RHODOSPIRILLACEAE)

Two Gram-negative, Gram-negative, non-flagellated, phototrophic alphaproteobacteria strains JA480^T and JA481 of phototrophic alphaproteobacteria were isolated from sediment samples collected from brackish water near Nagapattinam, India. The strains showed chimeric intracellular photosynthesis membranes. The 16S rRNA gene sequence analysis indicated that it belongs to a new genus. Based on these phenotypic and genotypic characteristics along with phylogenetic inference, strains JA480^T and JA481 are proposed as novel species, with the type strain JA480^T (=KCTC 5825^T=NBRC 106163^T=DSM 23193^T).

Phaeospirillum tilakii Shalem P. Raj, S. Kalyana Chakravarthy, E. V. V. Ramaprasad, Ch. Sasikala & Ch. V. Ramana, Int. J. Syst. Evol. Microbiol. 61: 2011. (RHODOSPIRILLACEAE)

Two Gram-negative, spiral shaped, anaerobic, motile purple non-sulfur bacteria, designated strains JA492^T and JA590, were isolated from a bird sanctuary and a stream in Western Ghats, India respectively. The strain has Bacteriochlorophyll *a* and carotenoids as photosynthetic pigments. The 16S rRNA gene sequence analysis indicated that, it belongs to a new genus. The closest related species are *Phaeospirillum oryzae*, *P. molschianum*, *P. fulvum*, and *P. chandramohanii*. Based on these phenotypic characteristics and on phylogenetic inference, strain JA492^T was treated as a novel species with the type strain JA492^T (=NBRC 107650^T=KCTC 15012^T).

Pseudoxanthomonas indica Kirti Kumari, Pooja Sharma, Kshitiz Tyagi & Rup Lal, Int. J. Syst. Evol. Microbiol. 61: 2107-2111, 2011. (PROTEOBACTERIA)

A bacterial strain, designated as P15^T, was isolated from the soil of an open hexachlorocyclohexane dumpsite. Comparative 16S rRNA gene sequence analysis showed that strain P15^T belongs to the genus *Pseudoxanthomonas* with the closely related species *Pseudoxanthomonas mexicana* and *P. japonensis*. DNA relatedness studies showed it to be representing a new member of this genus with the type strain P15^T (=MTCC 8596^T=CCM 7430^T).



Rhizobium pusense Digvijay Panday, Peter Schumann & Subrata K. Das. Int. J. Syst. Evol. Microbiol. 61: 2632-2639, 2011, (PROTEOBACTERIA)

A bacterial strain, designated as NRCPB10^T, was isolated from rhizosphere soil of chickpea (*Cicer arietinum* L.) in Pusa, New Delhi, India. The 16S rRNA gene sequence of strain NRCPB10^T shows *Rhizobium radiobacter* NCPPB 2437^T and *Rhizobium leguminosarum* AF3-10^T are the most closely alleles of the strain. Phylogenetic analysis, DNA-DNA hybridization, chemotaxonomic and phenotypic analysis support the conclusion that strain NRCPB10^T represented a novel species within the genus *Rhizobium* with the type strain NRCPB10^T (=LMG 25623^T=JCM 16209^T=NCIMB 14639^T).

Rhodopseudomonas harwoodiae Venkata Ramana, Kalyan S. Chakravarthy, Shalem P. Raj, Vinay B. Kumar, E. Shobha, E. V. V. Ramaprasad, Ch. Sasikala & Ch V. Ramana. Int. J. Syst. Evol. Microbiol. 61, 2011, (PROTEOBACTERIA)

Four red to reddish brown pigmented, rod shaped, motile and budding phototrophic bacteria designated as JA310^T, JA531^T, JA447 and JA490 were isolated from soil and fresh water sediment samples from India. Phylogenetic analysis on the basis of 16S rRNA gene sequences showed that all strains clustered with species of the genus *Rhodopseudomonas* in the class Alphaproteobacteria. On the basis of phenotypic, chemotaxonomic and molecular genetic evidence, JA531^T was proposed as a novel species with the type strains JA531^T (=NBRC 107575^T=KCTC 5841^T).

Rhodopseudomonas paropalustris Venkata Ramana, Kalyan S. Chakravarthy, Shalem P. Raj, Vinay B. Kumar, E. Shobha, E. V. V. Ramaprasad, Ch. Sasikala & Ch V. Ramana. Int. J. Syst. Evol. Microbiol. 61, 2011, (PROTEOBACTERIA)

Four red to reddish brown pigmented, rod shaped, motile and budding phototrophic bacteria were isolated from soil and fresh water sediment samples from India designated as strains JA310^T, JA531^T, JA447, and JA490. All strains contain Bacteriochlorophyll *a* and carotenoids of spirilloxanthin series. Phylogenetic analysis on the basis of 16S rRNA gene sequences showed that all strains clustered with species of the genus *Rhodopseudomonas* in the class Alphaproteobacteria. On the basis of phenotypic, chemotaxonomic and molecular genetic evidence, strain JA310^T was proposed as a novel species with the type strain JA310^T (=NBRC 106083^T=KCTC5839^T).

Rhodopseudomonas pseudopalustris Venkata Ramana, Kalyan S. Chakravarthy, Shalem P. Raj, Vinay B. Kumar, E. Shobha, E. V. V. Ramaprasad, Ch. Sasikala, & Ch V. Ramana. Int. J. Syst. Evol. Microbiol. 61, 2011, (PROTEOBACTERIA)

A strain of red to reddish brown pigmented, rod shaped, motile and budding phototrophic bacteria was isolated from soil and fresh water sediment samples from different geographic regions of India. Phylogenetic analysis on the basis of 16S rRNA gene sequences showed that the strain belongs to the genus of *Rhodopseudomonas* in the class Alphaproteobacteria. Based on the DNA-DNA hybridization, chemotaxonomy and molecular genetic studies, the strain proposed to be a new species of the genus *Rhodopseudomonas* with the type strain DSM 123^T (=NBRC 100419^T).

Salinicoccus sesuvii P. Kämpfer, A. B. Arun, H.-J. Busse, Chiu-Chung Young, W.-A. Lai, P. D. Rekha & Wen-Ming Chen. Int. J. Syst. Evol. Microbiol. 61: 2348-2352, 2011, (Firmicutes and Related Organisms)

A Gram-staining-positive coccus, designated as CC-SPL15-2^T, was isolated from the rhizosphere of *Sesuvium portulacastrum*. The 16S rRNA gene sequence analysis showed that strain CC-SPL15-2^T belongs to the genus



Soliricoccus. Physiological and biochemical analysis clearly differentiated the strain CC-SPL15-2^T from other members of the genus *Soliricoccus* and was designated to a new species with the type strain CC-SPL15-2^T (=DSM 23267^T =CCM 7756^T).

Sandaracinus amylolyticus Kathrin I. Mohr, Ronald O. Garcia, Klaus Gerth, Herbert Irschik & Rolf Müller, Int. J. Syst. Evol. Microbiol. 61: 2011, (SANDARACINACEAE)

A novel starch-degrading Gram-negative myxobacterium, designated as NOSO-4^T, was isolated in 1995 from a soil sample containing plant residues, collected in Lucknow, Uttar Pradesh, India. The strain is mesophilic, strictly aerobic, and chemoheterotrophic. The 16S rRNA gene sequence analysis indicated that it belongs to a new genus *Sandaracinus* of a new family *Sandaracinaceae*. Based on phenotypic characteristics and phylogenetic inference, strain NOSO-4^T was proposed a new species with the type strain NOSO-4^T (=DSM 53668^T =NCCB 100362^T).

Shewanella indica Pankaj Verma, Prashant Kumar Pandey, Arvind Kumar Gupta, Ho Jun Kim, Keun Sik Baik, Chi Nam Seong, Milind Shivaji Patole & Yogesh Shreepad Shouche, Int. J. Syst. Evol. Microbiol. 61: 2058-2064, 2011, (PROTEOBACTERIA)

A Gram-negative, facultatively anaerobic, rod-shaped, catalase- and oxidase-positive bacterium designated as strain KJW27^T motile by means of a single polar flagellum was isolated from the marine sediment of Karwar jetty, west coast of India. Phylogenetic analysis based on 16S rRNA and *gyrB* gene sequences showed that strain KJW27^T formed a lineage within the genus *Shewanella* and is other closely related species. On the basis of the phylogenetic analysis and morphological differentiation, strain KJW27^T was proposed as a new species with the type strain KJW27^T (=KCTC 23171^T =BCC 41031^T =NCIM 5388^T).

Streptomyces sundarbansensis Meyyappan Anumugam, Anindita Mitra, Arnab Pramanik, Malay Saha, Ratan Gachhui & Joydeep Mukherjee, Int. J. Syst. Evol. Microbiol. 61: 2664-2669 2011, (ACTINOBACTERIA)

A novel actinomycete designated strain MS1/7^T was isolated from sediments of the Sundarbans mangrove forest, India. Phylogenetic analysis based on the 16S rRNA gene sequences indicated that the strain belongs to the genus *Streptomyces* showing closest relationships to viomycin-producers (*Streptomyces californicus* NRRL B-1221^T, *Streptomyces floridiae* MTCC 2534^T and *Streptomyces puniceus* NRRL B-2895^T). Strain MS1/7^T was therefore, suggested to represent a novel species with the type strain MS1/7^T (=MTCC 10621^T =DSM 42019^T).



APPENDIX-I

No. 26-15/2007-CSC
Government of India
Ministry of Environment and Forests

Paryavaran Bhawan
CGO Complex, Lodhi Road,
New Delhi-110 003
Dated the 28th August, 2008

ORDER

Subject : Designation of repositories under the Biological Diversity Act, 2002

In exercise of the powers conferred by sub-section (1) of section 39 of the Biological Diversity Act, 2002, read with sections 6 and 12 of Notification S.O. 1911(E), dated 8th November, 2006. The Ministry of Environment and Forests, Govt. of India, hereby designates the following institutions to act as repositories under the Act for different categories of biological resources :

S.No.	Name of Institution	Category of Biological Resource
1.	Botanical Survey of India, Kolkata	Flora (Angiosperms, Gymnosperms, Pteridophytes, Bryophytes, Lichens, Macro fungi, Macroalgae)
2.	National Bureau of Plant Genetic Resources, New Delhi	Plant genetic resources
3.	National Botanical Research Institute, Lucknow	Flora (Angiosperms, Gymnosperms, Pteridophytes, Bryophytes, Lichens, Macrofungi, Macroalgae)
4.	Indian Council of Forestry Research and Education, Dehradun (Forest Research Institute, Dehradun; Institute of Forest Genetics and Tree Breeding, Coimbatore; and Tropical Forest Research Institute, Jabalpur)	Flora (Angiosperms, Gymnosperms, Pteridophytes, Bryophytes, Lichens, Macrofungi, Macroalgae). For TFR I only Fauna (termites, butterflies, moths)
5.	Zoological Survey of India, Kolkata	Fauna
6.	National Bureau of Animal Genetic Resources, Karnal, Haryana.	Genetic resources of domestic animals
7.	National Bureau of Fish Genetic Resources, Lucknow, U.P.	Fish genetic resources
8.	National Institute of Oceanography, Goa	Marine flora and fauna
9.	Wildlife Institute of India, Dehradun	Faunal resources in Protected Areas
10.	National Bureau of Agriculturally important Microorganisms, Mau Nath Bhanjan, U.P.	Agriculturally important microorganisms
11.	Institute of Microbial Technology, Chandigarh	Microorganisms
12.	National Institute of Virology, Pune	Viruses
13.	Indian Agricultural Research Institute, New Delhi	Microbes/Fungi



2. In accordance with sub-section (2) of Section 39 of the Act, the designated repositories shall also keep in safe custody the representative samples, as voucher specimens of the biological material accessed in accordance with the provisions of Section 19 of the Act, alongwith relevant information related to the material, such as DNA fingerprints, if so required by the National Biodiversity Authority (NBA).
3. The designated repositories at serial No. 1, 3, 4, 5, 10, 11, 12 and 13 shall also keep in safe custody the type specimen deposited by any person who discovers a new taxon, in accordance with sub-section (3) of Section 39 of the Act.
4. The order issues with the approval of this competent authority.

Sd/-
(A.K. Goyal)

Joint Secretary to the Government of India

To

1. Director, Botanical Survey of India, CGO Complex, 3rd MSO Building, Block F, DF Block, Sector I, Salt Lake City, Kolkata-700 064.
2. Director, Zoological Survey of India (ZSI), Prani Vigyan Bhawan, M-Block, New Alipore, Kolkata-700 053
3. Director, National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi-110 012.
4. Director National Botanical Research Institute, Rana Pratap Marg, P.B. No. 436, Lucknow-226 001, U.P.
5. Director General, Indian Council of Forestry Research & Education, P.O. New Forests, Dehradun-248 006, Uttarakhand.
6. Director, National Bureau of Animal Genetic Resources, Makrampur Campus, G.T. Road Bye Pass, Near Basant Vihar, P.O. Box 129, Kamal (Haryana)-132001.
7. Director, National Bureau of Fish Genetic Resources, Canal Ring Road, P.O. Dilkusha, Telibagh, Lucknow-226 002, Uttar Pradesh
8. Director, National Institute of Oceanography, Dona Paula-403 004, Goa
9. Director, Wildlife Institute of India, P.B. No. 18, Chandrabani, Dehradun-248 001, Uttarakhand.
10. Director, National Bureau of Agriculturally Important Microorganisms, Kusmaur (Post Bag Kaithauli), Post Box No. 6, Mau Nath Bhanjan, Uttar Pradesh-275 101.
11. Director, Institute of Microbial Technology, Sector 39-A, Chandigarh-160 036.
12. Director, National Institute of Virology, 20-A, Dr. Ambedkar Road, P.B. No. 11, Pune-411 001.
13. Director, Indian Agricultural Research Institute, Pusa Road, New Delhi.

Copy to the Chairman, National Biodiversity Authority, 475, 9th South Cross Street, Kapaleeswarar Nagar, Nelankarai, Chennai-600 004.

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